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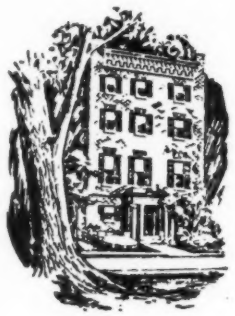

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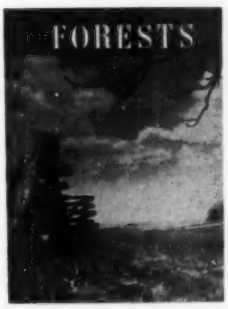
Cover

March, month of Mars, is noted for many things. Julius Caesar's murder, income taxes and capricious weather are a few, but most important, perhaps, is its fame as a harbinger of spring. In this cover scene along the Blue Ridge Parkway, Allen Rinehart seems to have caught March in a typically coy mood, undecided whether to be a "lion" or a "lamb." The slightly overcast sky and the starkness of the countryside might suggest she is just holding her breath for another big blow. However, being optimistic souls we prefer to think the tiny awakening buds are a subtle hint that Spring is really just around the corner. Interior Department photo.



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The American Forestry Association, publishers of *American Forests*, is a national organization—independent and non-political in character—for the advancement of intelligent management and use of forests and related resources of soil, water, wildlife and outdoor recreation. Its purpose is to create an enlightened public appreciation of these resources and the part they play in the social and economic life of the nation. Created in 1875, it is the oldest national forest conservation organization in America.

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American FORESTS Forum

Looking Ahead—Can you imagine a logging superintendent twirling the dial and bringing the projected image of his "tin-hat" crews out of the tall timber onto the TV screen in his office? It isn't being done yet, but don't snicker! Less than ten years ago lumberjacks didn't dream industrial two-way radio had any more place in the woods than a Paris evening gown, but what a change Paul Bunyan's boys have witnessed since 1949. **Albert Arnst** tells all about it in *Logging With Radio Beams*, scheduled for the April issue. For a bit of contrasting and nostalgic reading, you'll enjoy **O. A. Fitzgerald's** *Last of the River Pigs*, a graphic picture and prose account of driving a winter's cut of logs downstream during the Spring thaw.

Also in keeping with the season will be *Sugaring Time* in Franklin County, Vermont, a picture story by **Mabel Otis Robinson.** Among other offerings will be a fiction story by **Frances Ames**, frequent contributor to outdoor magazines. This one is called *Pop's Son-in-Law.* For the April *Your Shade Trees* page, **R. R. Fenska** advises *Let Us Spray*, and for the companion *Managing Your Woodland* feature **H. D. Bennett** offers useful tips on *Thinning Hardwood Timber.*

In This Issue—A federal experiment in rehabilitating errant youths through forest conservation work projects in the Blue Ridge Mountains of Virginia makes for MUST reading in *A Straight Path Through the Forest* (page 8). **Dorothy Walker** of Washington, D. C. gives an enthusiastic account of the work being done by — and for — the boys at Natural Bridge Camp on the Jefferson National Forest. The pictures, too, are hers. Nearly 100 million acres of the great Southwest can be transformed into productive grazing land again by eradicating the scrubby brush and giving the grass a chance, reports **Harley A. Daniels** in *Brush, Grass, Beef and Dollars* (page 12). Daniels should know, for he has established quite a reputation for himself as project supervisor of the Red Plains Conservation Experiment Station at Guthrie, Oklahoma.

Cleveland van Dresser concludes his series on *Abuses Under the Mining Laws* by citing instances to prove *You're Being Robbed!* on the Bureau of Land Management's public domain, as well as on the National Forests. It's on page 20. **Weldon D. Woodson** tells us (page 24) that an arboretum in southern California often doubles as *Tarzan's Jungle—Hollywood Style*, while neighboring Arizona is the setting for *He Makes People Sit on Cactus*, in which **Henry F. Unger** tells of a "desert rat's" unique furniture business.

Don't Give the Bugs a Chance, says **R. R. Fenska** in this month's *Your Shade Trees* (page 15), while the *Managing Your Woodlands* feature switches to the South this month as **T. A. Liefeld** discusses *Thinning for Pulpwood* (page 28). **Kenneth J. Seigworth** has a worthwhile message, too, in telling how Tennessee Valley foresters are *Teaching Timber Harvest Know-How* (page 26). You'll also find *The Lookout's Mechanical Eye* (page 18), **Howard Corning's** account of William Osborne's development of the indispensable fire finder, and **Henry Kernan's** *From Old Field to Forest* (page 23).

Our Readers Say—From J. M. White, president of the Long-Bell Lumber Company, Longview, Washington comes comment on **Cleveland van Dresser's** *Abuses Under the Mining Laws* series which concludes this month. His sentiments are quite similar to those of Miss Annette Fiske of Cambridge, Massachusetts, Olaus J. Murie of The Wilderness Society and scores of others. Says Mr. White:

I have read with interest the article on page 6 of the January issue on *Abuses Under the Mining Laws.* Have likewise read the editorial in the subject. I feel this is a matter of great importance and should be followed by Congressional action to amend the mining laws to the end that dishonest application thereof would not apply in the future; further, that situations where abuses now apply be prosecuted to the end that title would revert and cloud would not apply on the lands involved as to fictitious mining claims where they have only a hole in the ground.

I have had direct experience with reference to this matter in that in Siskiyou County, California, particularly on the Gazelle Mountain road leading into Scott Valley, there are areas of government timber clouded with mining claim titles which could not be cut. As a result, the pine beetle came in and destroyed a very heavy percentage of the mature timber. This precluded any operator going in and cutting what was left. It may be that since this happened several years ago the cloud has been removed, for I have been out of touch for several years with this particular situation.

This comment is simply to endorse and approve the article and editorial, and I trust that proper officials will get busy on this matter and stop the plunder that now applies. I will look forward with interest to reading the articles that are to come along in later issues.

Elmer W. Shaw, professional forester from Lacey, Washington about whom you'll be hearing more in later issues as author of several meaty articles, writes:

The January issue is exceedingly interesting to me, especially the first of the Woodland Management features, for I helped conduct some of the demonstrations . . . I believe I have detected a minor fallacy in **Dorothy Clarke's** fascinating account of *Freak Fare.* According to her explanation, an acorn sprouted beneath the skull of a dead stag lying on the ground. "When the sapling oak reached maturity only the dead stag's antlers were visible, sticking out of the bark high up on either side of the tree." This gives the impression the growing oak actually lifted the antlers from the ground level to "high up" in the air.

But for Dicotyledonous trees such as the oaks, this feat would be impossible. Had the seedling grown up through a hole in the skull, the layers of annual growth would gradually encase the skull and antlers but never lift them above the ground level. Only the tips of the branches make actual height growth; not the bole of the tree.

Judging from the accompanying photo, I believe a hunter or woodsman found a set of antlers attached to a skull fragment. He hung them, points downward, as high as he could reach in the crotch of a young oak. As the tree grew, the antlers were partially encased by the new wood growing around them . . .

Among others to catch this error was James D. Pond of Ithaca, New York, and it must be admitted the staff of *American Forests* knew better. Must have been the Christmas rush.

R. R. Fenska writes:

I have just read *On His Own Wooded Acres* by **Henry S. Kernan** (October 1951). Anyone who has the convictions that that man Kernan has and can write them up the way he has in this article deserves the medal of the AFA for the outstanding forester of the year. My compliments to Kernan and long may he carry on his one-man forest experiment station.

That man Kernan is now in Iran on a forestry mission and promises another sample of his writing from there, this one on the charcoal industry of the Elberg Mountains.

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WASHINGTON LOOKOUT

By G. H. COLLINGWOOD

The Missouri Basin Survey Commission, whose creation was announced by President Truman on January 3, was named on February 9. The 11 members of the Commission are drawn from both houses of Congress and from private life. All are from the Basin area and each understands the problems the Commission will study. A prerequisite to their appointment, according to the President's statement, is that they "have not prejudged the issue the Commission will study."

The President charged the members of the Commission "to give the country their advice as to the best way to proceed to achieve an orderly, business-like development of the resources of the Missouri Basin — a development that places first things first and provides for the greatest resulting benefits for all the people of the Basin and the Nation," and requested a report by January 3, 1953, or within one year of the date of the original order.

James E. Lawrence, editor of the *Lincoln Star*, Lincoln, Nebraska, was named chairman, and Senator Thomas C. Hennings, Jr., of Missouri, vice-chairman. Serving with them are Senators James E. Murray, of Montana, and Milton R. Young, of North Dakota, Representatives Wayne N. Aspinall, of Colorado, Clifford R. Hope, of Kansas, and James W. Trimble, of Arkansas, together with Fred V. Heinkel, President of the Missouri Farmers Association, Columbia, Missouri, Kenneth Holum, farmer and member of the State Legislature, Groton, South Dakota, C. T. Person, Dean, School of Engineering, University of Wyoming, Laramie, Wyoming, and Harry J. Peterson, Executive Secretary, Minnesota Association of Co-operatives, St. Paul, Minnesota.

Appropriation hearings have proceeded generally according to schedule following release of the President's budget message on January 21. Chief Forester Lyle F. Watts, with several Division Chiefs, went before Representative Jamie L. Whitten's subcommittee on Agriculture Appropriations on February 11, to defend the estimate of $89,816,974 for the fiscal year beginning in July.

Essentially the same as the current appropriation, the Forest Service budget includes increases totaling $5,467,372. The bulk of this is covered by $2,695,975 to provide $30,018,000 for operating and administering 181,034,882 acres in 151 national forests and 33 purchase units, $970,000 for the Smoke Jumper Depot at Missoula, Montana, as authorized by the Act of October 24, 1951, and $1,445,000 in added payments to the States.

These will then total $22,572,294. These funds are provided largely by 25 percent of the gross receipts from timber sales, grazing fees, etc., and an additional ten percent of similar receipts which is allotted for expenditure on national forest roads in the states where they originated. This coming year's increase reflects the all-time high in national forest receipts which totaled $56,147,342 during fiscal year 1951. Its return to the States is mandatory.

Forest research, acquisition of lands in the Superior National Forest, and additions to the funds for state and private forestry cooperation make up the remainder. The latter would total $10,793,000 which is $43,000 more than is currently available. Of this amount $9,449,500 would be for forest fire prevention and control under the Clarke-McNary Act; $447,061 for nursery production and tree planting; $633,904 for management assistance to private landowners and processors; $107,835 for farm forestry extension through the Cooperative Agricultural Extension Service; and $154,700 for general forestry assistance.

Budget requests of $4,000,000 each for white pine blister rust control and activation of the Forest Pest Control Act of 1947, represent increases totaling $2,000,000 above current appropriations. Emphasis on forest pests in the Chief Forester's Annual Report for 1951, indicates he will join Avery Hoyt, Chief of the Bureau of Entomology and Plant Quarantine in supporting the budget request.

The land management agencies of the Department of the Interior supported their budget estimates before Ohio Representative Mike Kerwin's subcommittee on Interior Appropriations during the period from the middle of January to February 8. Forest and range management items for the Public Domain and the National Parks show no major increases over those of the current year, but the Bureau of Indian Affairs would receive an increase of $8,275,382 to give that agency $10,026,000 for repair and maintenance of roads and trails on Indian lands. Similarly, administration of the Indians' forest and range lands would be increased by $1,561,140 to provide a total of $3,418,000.

National forest recreational resources and areas, including wildlife resources would be given a special allocation of ten percent of the gross receipts of the national forests, in H.R. 565, as introduced on January 3, 1951, by Representative Boyd Tackett, of Arkansas. More generous is S. 2527, as introduced by Senator Kenneth D. McKellar, of Tennessee, which would support these activities with 25 percent of Forest Service receipts.

The Tackett bill is similar to H.R. 2419 of the 81st Congress, on which the House Committee on Agriculture reported favorably, despite adverse opinion by the bureau of the Budget. In support of the bill of the previous Congress, Secretary Brannan wrote the Committee that present appropriations for care of recreation areas on national forests leave many in a condition which is "a menace to public safety and to the preservation of the forest." Directing his attention to the national forests as sources of municipal water, he wrote: "Unless better sanitary facilities are provided to protect the water supply of some towns and cities, it might be necessary to close important recreation areas."

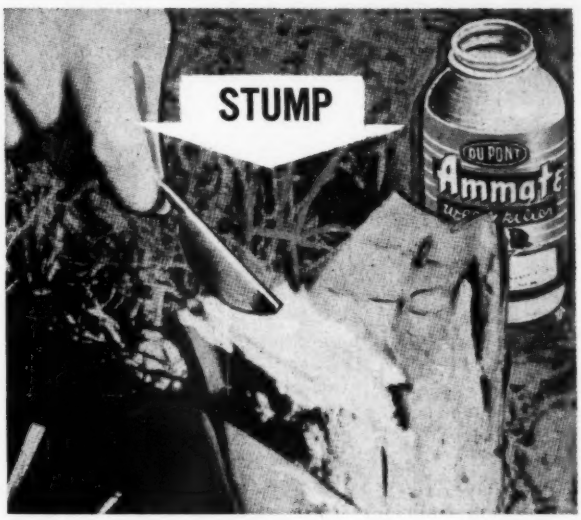
Destructive exploitation of pumice, long a menace to some public areas and described by Cleveland van Dresser in *American Forests* for *February*, would be corrected by H.R 4916 as introduced on July 25, 1951. by Representative Ken Regan, of Texas. This bill is with the House Committee on Interior and Insular Affairs.

"Smokey Bear," who pleads for protection of forests from fire, and appears on posters and billboards across the country, would be protected from commercial use by S. 2322, H.R. 5790 and H.R. 5820, introduced respectively by Senator Richard B. Russell, of Georgia, and

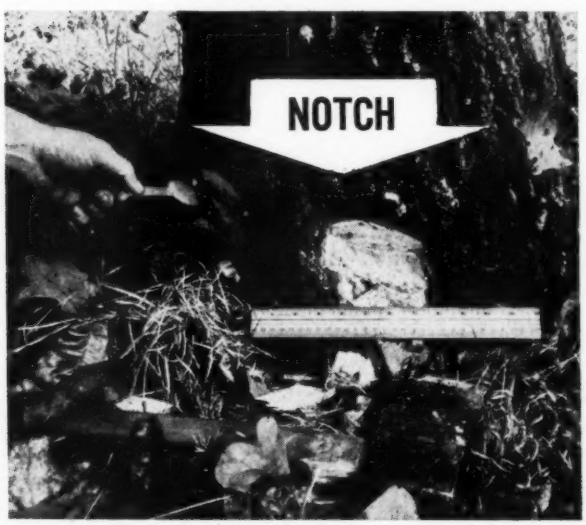
(*Turn to page* 50)

4 Ways to Kill Scrub Trees with Du Pont "Ammate"

1 For large trees, hack overlapping cuts into the sapwood around the trunk. Pour in enough "Ammate" solution (4 lbs. to a gallon of water) to wet the cut surface all around the tree.



3 Cut small trees with a V-shaped stump. Put a tablespoonful of "Ammate" crystals in the V. You can also use "Ammate" on larger stumps to prevent sprouting.



2 On tough trees, chop notches every six inches near the ground. Put a tablespoonful of "Ammate" crystals in each notch. This deadens even blackjack oak with little resprouting.

4 On seedling trees or sprouts, spray the green leaves and stems when they are fully leafed out using "Ammate," ¾ lb. per gallon of water. Let trees or sprouts stand a year for best kill.

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NEWS IN REVIEW

Reforestation Progress—Reforestation maintained a high level in fiscal 1951 with 456,370 acres planted, according to figures released recently by the U. S. Forest Service.

This brings total acreage of reforested land in the U. S. to about 7,700,000 acres, including planting by the Forest Service, Soil Conservation Service, Tennessee Valley Authority, Department of Interior, states and private landowners.

Although 1951 planting dropped 41,000 acres from the 1950 record, it surpassed the highest five-year average of 453,400 acres established between 1937 and 1941 when the Civilian Conservation Corps and the Prairie States Shelterbelt programs were in full swing.

Lyle F. Watts, Forest Service chief, believed the slight decrease in 1951 planting was caused by a shortage of planting stock and does not reflect a waning public interest. State nurseries in 20 states reported demand exceeded supply by a total of 60 million trees. Seven states reported they are building new nurseries and 12 are expanding existing facilities.

Greatest tree planting activities in 1951 were in the south. Leading in reforestation work was Louisiana with 53,081 acres. Georgia was second with 40,313 acres.

* * *

Man of Year — J. L. Holyfield, Toms Creek, Virginia, has been named 1951 Man of the Year in Forestry by Virginia Forests, Inc. The citation pointed out that Holyfield, as assistant manager of the land department of the Virginia Iron, Coal and Coke Company, has been responsible for the planting of more than 200,000 pine seedlings during the past several years. He also was instrumental in setting up a forest management plan — in cooperation with the Virginia Forest Service and the Tennessee Valley Authority—on 21,000 acres in Dickenson, Russell, Scott and Wise counties.

* * *

Wildlife Conference—The 17th North American Wildlife Conference will convene March 17-19 in Miami, Florida. Approximately 1500 fish and game administrators, foresters, biologists, sportsmen, and representatives of conservation agencies from all states, Canada, Mexico and Alaska are expected to attend.

Sponsored by the Wildlife Management Institute, the conference will deal with all phases of water, soil, forest and wildlife conservation programs under the general theme: "Natural Resources—Your Security."

* * *

Biggest Melon — Forty states, Puerto Rico and Alaska will share $13,974,027, representing 25 percent of Forest Service receipts from the sale of timber, grazing fees and special land leases during fiscal year 1951, according to the Department of Agriculture. This is the greatest return ever made to the states from national forests, exceeding last year's record $8,343,010 by more than 60 percent. By law, the money is earmarked for public roads and public schools in counties containing national forest land.

* * *

Patent Granted — A U. S. patent, pending since 1947, has been granted A. B. Everts, Portland, Oregon for his device for setting and controlling backfires." Everts is an equipment engineer in the regional office of the Forest Service.

The device, designed for pulling behind a truck or other vehicle, is capable of setting and extinguishing backfires at rates of speed up to eight miles per hour. Backfires often are started to burn out the vegetation in front of an uncontrolled fire.

* * *

Names in the News—JAMES A. HOLEKAMP, named logging engineer for the American Pulpwood Association; HOWARD T. MARSHALL, named chief of fiscal control for the U. S. Forest Service; JOHN R. CALKINS, named Lake States manager of American Forest Products Industries, headquarters in Chicago, Illinois; DAVID J. GUY, former natural resources specialist with U. S. Chamber of Commerce, named executive vice-president of the American Watershed Council, Inc., with headquarters in Washington, D. C.; JAMES W. CRAIG, appointed state forester of Mississippi succeeding Albert A. Legett who died last December; CLINTON H. WASSER, named dean of the school of forestry and range management, Colorado A & M College, succeeding Dr. J. Lee Deen, deceased; E. T. F. WOHLENBERT, re-elected president of the Redwood Region Conservation Council; I. T. WILLIAMS, re-elected president of the Mahogany Association, Inc.; EARL PORTER, elected president of the Southern Pulpwood Conservation Association.

* * *

Production Peak — All lumber production records for the Douglasfir region were broken in 1951 as sawmills in western Oregon and Washington recorded an 11.198 billion board foot output.

This topped 1950 by over half a billion feet, according to Harris E. Smith, secretary of the West Coast Lumbermen's Association. The 10.663 billion feet cut in 1950 had set a 125-year record.

Shipments in 1951, Smith reported, also broke all previous records with 11.021 billion feet.

* * *

Dr. Illick Retires—Dr. Joseph S. Illick, has retired from the deanship of the State University of New York College of Forestry. He has administered the affairs of the College for almost eight years, having been acting assistant dean, acting dean and dean. Dr. Illick had been at the College 14 years as professor of forest administration and head of the department of forest management when he was appointed dean in 1945.

* * *

State Shorts—A total of 565 forest fires burning 26,000 acres was reported in MINNESOTA during 1951. Damage amounted to $65,800. The number of fires is the third lowest in the state's history.

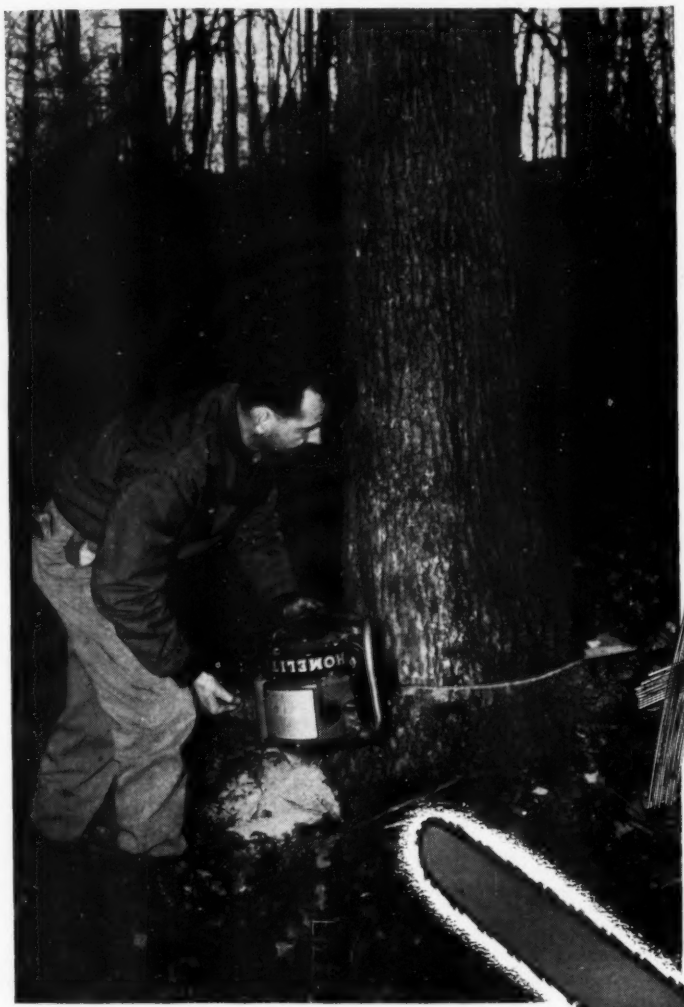
GEORGIA is adding 55 new lookout towers to aid in fighting fires on the state's million acres of forest land, according to Guyton DeLoach, director of the Georgia Forestry Commission.

FLORIDA'S Board of Forestry, in a recent two-day meeting, gave the go-ahead signal for expansion of its nursery program to produce about 50 million slash pine seedlings next winter.

WASHINGTON'S 1952 Forest Conservation Week will be sponsored April 14-19 by the Forestry Club of the State College of Washington. The observance is aimed at promoting better appreciation of the state's forest heritage.

* * *

Record Receipts—National forest receipts for the last six months of 1951 reached a new high of $41,790,145, according to the Department of Agriculture. This represents an increase of nearly 50 percent over receipts of $27,981,665 for the same period of 1950.



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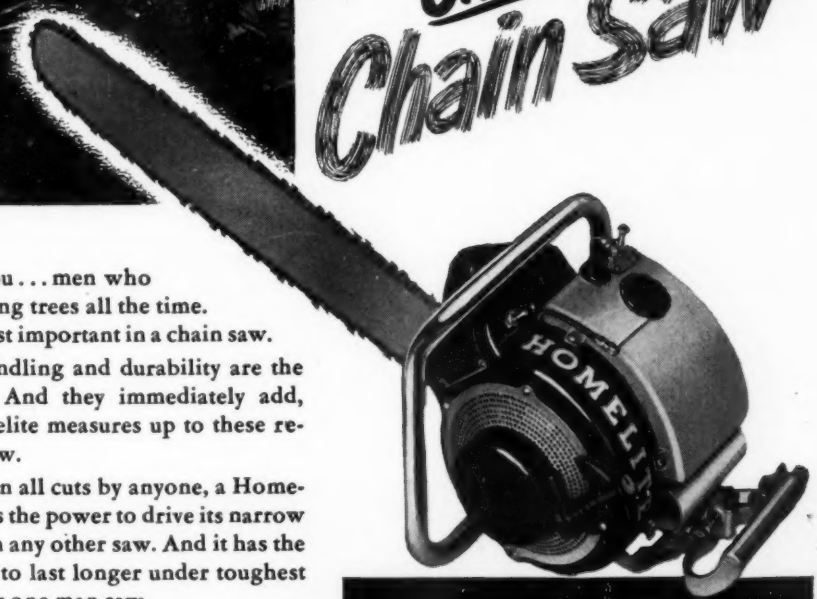

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A Straight Path Through the Forest

Delinquents are finding a new and better way of life at Natural Bridge, revolutionary federal boys camp, located deep in Virginia's Jefferson National Forest

By DOROTHY WALKER

IN Virginia's tradition-rich Blue Ridge Mountains a bold experiment is proving that a forest environment can make a better youth—and that such a youth is responding, in turn, to make a better forest.

This unusual project, where rehabilitation of human resources and conservation of natural resources are being combined to a highly successful degree, began in the summer of 1944 when the U. S. Bureau of Prisons established Natural Bridge Camp for delinquent boys.

The Bureau long had wanted to establish a training center that would provide an outdoor environment, a center that would more readily meet the varying needs of the individual than did the regimented facilities of existing institutions. Authorities were impressed with results achieved in California during the depression when forestry camps were created for transients and later adapted to the use of the state's delinquent youth.

Plans for a camp modeled along these lines were discussed with representatives of the U. S. Forest Service and the idea was received enthusiastically. In a matter of weeks, there was made available to the Department of Justice an abandoned CCC camp, located about midway of the long narrow, Blue Ridge mountain formation in western Virginia. The buildings were adequate for the start of a camp, and the site appeared then, as it is still, ideal.

The area in which the camp is situated is known as Arnold's Valley, deriving its name from old settlers who once received a grant of land from the state of Virginia. It maintains its identity as a section, rich in tradition, in spite of different names for the two railway stations — one Natural Bridge, the other Natural Bridge Station — and the fact that the Post Office for the camp is Greenlee.

The camp site is in the Jefferson National Forest, and it is approached by means of a bridge over the beautiful James River. There, on the valley floor, almost encircled by the heavily forested hills on which the snows remain until about the first of May, are the low white buildings that comprise the camp community. First to be seen are the superintendent's recently completed cottage and other buildings that provide living quarters for many of the 23 employees.

Edwin N. Osborne, camp superintendent, is looked upon by his staff as "just the right sort." He is not considered "soft," but rather does he have the ability to exercise real control. His employees are not driven and each is allowed full play of his personality. After 17 years in the federal correctional service, the camp superintendent is more than qualified to act as father to the 50 or 60 boys

Boys enjoy work in the forest, consider assignment to detail a reward

Overall view of the camp, located about midway of the long Blue Ridge mountain formation in western Virginia

whose temporary home is the camp. Osborne and his wife are from Georgia, and the two generally spend their vacations in their native state. "No one short of a three-generation resident of Virginia is really accepted as a Virginian," says Mr. Osborne, but he stays just the same.

On the day a boy arrives in Natural Bridge Camp, a letter is sent to his parents. They are told this is an honor camp, established to provide boys with training in an outdoor atmosphere and that assignment here is considered a privilege. The parents are advised also of the important place in the program of the forestry projects, as outlined by the U. S. Forest Service, as well as of the educational and recreational programs.

Parents are encouraged to write their son frequently, urging him to take advantage of his opportunities and to cooperate with his advisers. They are also advised that letters will do much to allay a boy's homesickness, as will visits to the camp on Saturdays, Sundays or holidays. And lastly, parents are encouraged to write the camp authorities at any time on matters concerning their boy.

Construction, repair, and maintenance of the physical plant of the camp have been from the first very important work projects. Completed late in 1949 was a large gymnasium with classroom space and a room used for chapel services. Under supervision, the boys made the cement blocks and laid them. The present camp inhabitants take pride in the building and have much admiration for the former camp boys who accomplished this great project.

All boys receive instruction in forestry, including fire fighting. They go through a course in nature lore, and they are taught how to handle themselves in the woods. Thus, through instruction, the camp boys learn to have respect for the forests and an understanding of the need to preserve them. Envisioned in the earliest program for the camp was the plan to have the boy spend his working day away from the camp insofar as possible. The forestry projects have offered this opportuntiy.

Boys are committed for violation of the Federal Juvenile Delinquency Act of 1937. This procedure takes their offense out of the felony class, but many of them are, nevertheless, guilty of serious crimes. Most of the boys who go to Natural Bridge Camp are from the National Training School for boys in Washington, D. C. There a careful screening is made of youths between the ages of 15 and 18 years for physical fitness, normal intelligence, and characteristics which make them particularly adaptable to an environment such as the camp presents.

A few of the boys are sent to the camp direct from the judge's commitment. Without the benefit of orientation at a training school, such

Youths get instruction in all phases of forestry, including fire fighting

Outing with guests in the picnic area on Natural Bridge camp grounds

boys present a special challenge to camp authorities.

Some boys in this group are from remote areas where they have had few or no opportunities. Not only do they not know how to work, they do not know how to play.

This was revealed to an instructor as he observed a 15-year-old Kentucky boy, who received sentence for whisky-making, attend his first basketball game in the gymnasium. When the ball bounced near him and came to rest, he cautiously touched it with the tips of his fingers. The ball was an entirely strange object to him. Not long after this, however, this boy was playing the game.

Camp groups, or "teams," each of which is headed by an adult counselor, form the basis of the administrative program. Two boys serve as leader and assistant leader of each "team." During the first few days after arrival at the camp, every new boy meets the camp superintendent, the chief counselor and other department heads, and he is fitted almost at once into the camp program. After this brief orientation he is made a member of a crew, and is given his first work assignment.

The forestry work details are prime favorites of the boys, and the real prize is the pulpwood project. The boys consider it an honor to be selected for the pulpwood crew, which operates the year around. Sometimes there are two crews in operation. The boys are taught the standards foresters observe, so that when logs reach the railway siding for loading, there are few to be discarded.

Typical of a spot where a crew may be found working is Hoop Pole Gap, well up the steep slopes of Wilson Mountain. A trail which will accommodate a truck but offers hard going for a passenger car, leads into the woods from the road. The foresters have preceded the crew here, and the trees marked for cutting bear a splash of yellow paint. The crews then fell and trim the trees, cut the logs into five-foot lengths, and stack them for hauling. The trees being cut are the hardwoods, mostly oak, and hickory, gum, ash, locust, wild cherry and sycamore.

New processes and formulae are now bringing many hardwoods into use for pulp and paper, whereas for many years paper making was restricted to softwoods. This culling and thinning process permits the foresters to work toward their plan of getting a stand of white pine in this area, in addition to making space for the growing of sawtimber. When the cutting takes place in a spot inaccessible for the tractor, by which means the wood is brought in, the trees are snaked up the bank by use of a winch attached to the tractor. Here and there through the woods are narrow trails where a horse has been used to haul the logs.

The fact that the boys are able to perform this hard physical work gives them a feeling of self-confidence, and satisfaction in their achievement.

Stronger bodies, healthier minds are natural results of work in outdoors

Stabilization of the banks along Lake Drive, Jefferson National Forest, was part of work done by camp youths

U. S. Forest Service photo

Also appreciated is the income from sale of the product. The money so earned is apportioned equally among the entire population of the camp, only federal institution where such a practice is observed. From any one of the 50 or more boys may come the eager question, "Is the pulpwood money in yet?"

"Yes, sir," comes the storekeeper's answer, "the monthly settlement has been made and you are richer by $3."

Every day, Monday through Friday, a line forms at noon outside a window of the administration building, and boys who are in good standing and who have money in their accounts are "making commissary." They are permitted to spend 50 cents a day and $2.50 a week, the only restriction being a limit of four candy bars a day. Some boys receive money from home. As they step to the window and give their names, an employee checks the account card and adds the amounts of the requested items on the adding machine. Each boy signs the slip, noting the addition if he feels inclined. He also is entitled to a duplicate slip, but few boys take them.

"A writing pad, a box of cookies, two candy bars and two packages of gum," said an older boy, with the corners of his mouth curled into a smile.

"Sign the slip," he heard, as the purchases were passed out the window.

Glancing swiftly at the figures, the purchaser said, "Wrong again!"

"What do you mean, again?" was the response, but the figures were checked good naturedly. And this time a real impish grin came over the boy's face.

"I don't know why it is, but if I make a mistake it's always when Joe's at the window," commented the storekeeper, a little sheepishly.

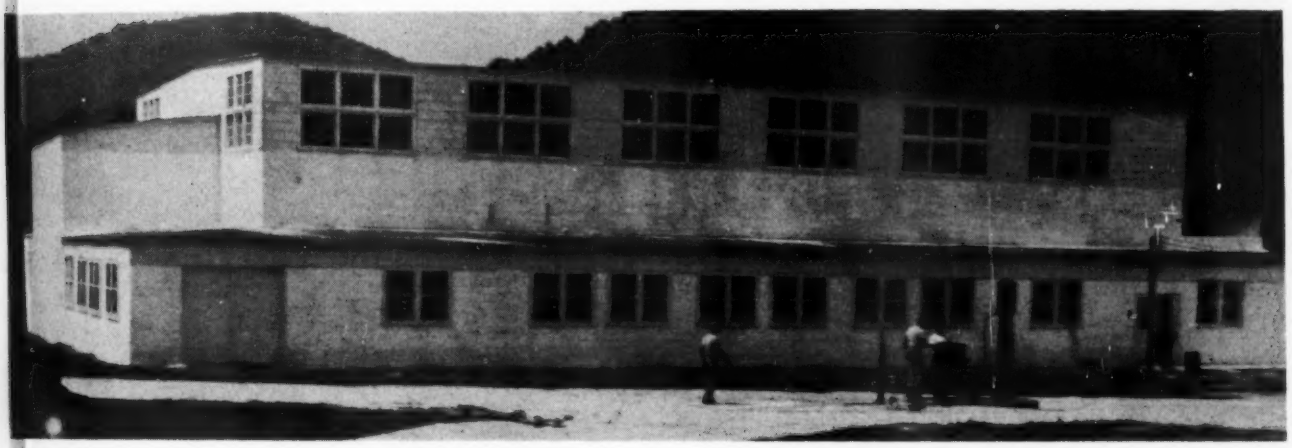
In September of 1950 a flash flood in Arnold's Valley cost Rockbridge County two million dollars. A dozen automobiles were never recovered, but fortunately there was no loss of life. A tremendous landslide from the side of a mountain fell across the road and the camp was marooned for two days. Not quite such a dramatic example of an act of nature, however, is required to illustrate to the young foresters the constant need for bank stabilization work. The camp boys go at this work with eagerness, and great sections of banks have been planted with blue grass or lespedeza, or stabilized with logs.

"Uncle Sam" doesn't make a big fuss in connection with the recreation program, but the camp boys know the Jefferson Forest Recreation Park and Cave Mountain Lake very well. Each spring and fall groups under the direction of Forest Service personnel perform many duties in the area. So much debris was dumped into the lake as the result of the 1950 flood that it was necessary to open the dam and drain and scrape the bottom. Swimming in the lake when it was not in use by the public has been a part of the camp recreation program.

"There is no smoke without fire," is the old saying; neither, it seems, are there forests without forest fires. Roadside signs such as "Keep Virginia Green," are part of a nationwide movement, however, that is bearing results. On an elevation of about 4800 feet, stands Apple Orchard fire lookout tower, not far from the camp. A crew of boys works almost continuously to keep the telephone wires cleared, and the brush and wood cut, so that the line of communication may be kept open in case of emergency. The boys stand in readiness for call all through the fire season.

All probably would volunteer if it were possible, but a team consists of 24 boys selected by the camp superintendent. In the most recent serious fire it seemed that a second 24 boys might be needed, and another team spent most of the night awake so they would be ready to go. Fortunately, however, the fire was under control by morning, and the happy team returned and fell into the sleep of exhaustion.

Were the waiting boys disappointed? They were, indeed. The fire-



Gymnasium, completed in 1949, also has classroom space, room for chapel services

fighters receive 15 cents an hour, and they fight beside high school boys of the area. In the words of a ranger, many of the camp boys are the better fighters. Perhaps this is because, in a certain sense, they consider themselves foresters.

The outdoor projects fill the working days of each boy almost to overflowing, but his schooling is not neglected. Just as many boys must work in the daytime and go to school at night, so the Natural Bridge boys reserve enough energy for evening classes. There are the review courses in the "three R's," which improve the schooling of those who may have completed the eighth or ninth grades. In the same classes, however, a boy who reads and writes with difficulty

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Photos by U. S. Soil Conservation Service

Harry M. Elwell, the author's A-1 assistant, inspects an area before and after being treated with chemical spray. Note difference in grass

Brush, Grass, Beef and Dollars

By HARLEY A. DANIEL

SCRUBBY brush and other worthless plants are choking off production on nearly 100 million acres of range land in the great Southwest. In Oklahoma alone it is estimated that beef production could be increased by 100 million dollars annually if the blighted land were cleared of noxious species. Six other cattle producing states—Texas, New Mexico, Arizona, Arkansas, Kansas and Colorado—are in the same predicament as Oklahoma.

But scientists are learning how to put such wasteland to work. They are using brush-killing chemicals, new machines and modern labor-saving methods. Moreover, once the useless brush is removed, surprisingly large yields of grass are being realized. The cleared woody pastures on the Red Plains Conservation Experiment Station at Guthrie, Oklahoma are producing five to eight times more hay and beef than uncleared land.

So tremendous is the potential gain in the brush-blighted Red Plains area that Former U. S. Soil Conservation Service Chief Hugh H. Bennett predicts that if the land suitable for clearing were put into grass "it would increase the annual production of beef enough to give 125 million people a pound a day throughout the year."

New eradication methods are proving that nearly 100 million acres of brush-choked waste in the Southwest can be transformed into productive grazing land

The infestation — covering about two-thirds of the ranges in much of the seven states—consists largely of scrub oak, mesquite and sagebrush which have little or no economic value. Their severe competition for moisture, sunlight and plant food greatly reduces growth of the better forage plants and represents one of the greatest single deterrents to range forage production. The problem is especially alarming in its rapid expansion over the once famous grasslands. The annual spread in Oklahoma and Texas alone is estimated at a half million acres.

Measures to control this menace are being applied in Soil Conservation districts. Cooperators are finding that range improvement saves soil, reduces floods, and produces more grass, beef and dollars.

Not all of the ten million acres in Oklahoma covered with scrubby oak and other woody vegetation can be safely cleared because of erosion hazards, but a tremendous amount can be improved.

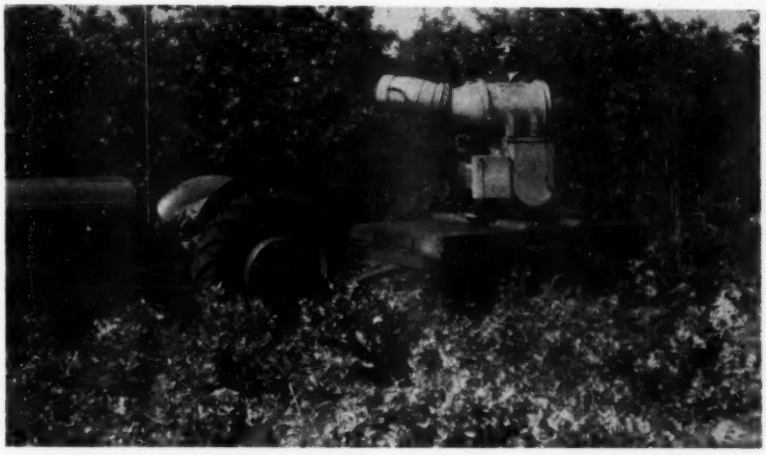
Louis P. Merrill, Regional Director of the U. S. Soil Conservation Service, Fort Worth, Texas says; "The pasture improvement work on the Red Plains Station and that in Soil Conservation Districts in the Red Plains areas of Oklahoma, Texas and Kansas are so outstanding and revolutionary, it is the equivalent of discovering seven million acres of new land."

Elmer T. Peterson, editor of the Daily Oklahoman and Times, Oklahoma City, Oklahoma says; "The value of my farm doubled after the scrubby oak brush was removed from my pastures."

Along with this great expansion of livestock production and grassland improvement will be the need for many new industries, such as chemicals, fertilizers, lime and processing plants. These will employ many more people and develop a demand for new roads, schools, churches, communities, towns and cities.

The first brush work on the Red Plains Station was done with hand tools in 1935. Since then various methods have been tried. Sprouts from stumps of brush cut mechanically were difficult to kill. They were controlled by annual mowing, but after 14 years many remained. Where chemicals were used, the brush was killed.

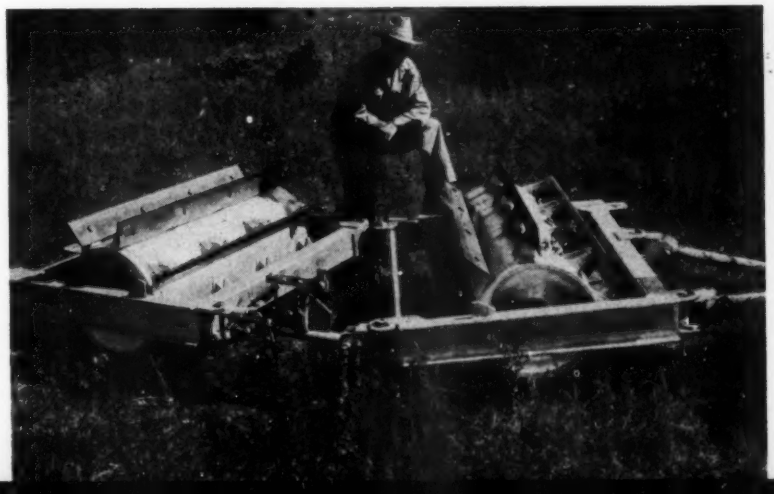
The land cover is not destroyed



Experiments at Guthrie, Oklahoma have proved that air-blast spraying machines are effective means of controlling brush

Tractor power saws also are being used successfully to clear land of worthless plants. Height of cut is manually controlled

Weighing more than two tons when empty, the giant stock cutter is used for breaking down small trees killed with chemicals



where selective herbicides are properly used. Leaves, twigs and stems of oak brush sprayed with a mixture of 2,4-D and 2,4,5-T all accumulated in a mulch on the soil. There was an average of 7590 pounds per acre of litter two years after the treatment. The mulch conserves water and makes conditions favorable for the growth of grasses. Measurements made during an eight-year period show that 45 percent less water ran off annually from good grass on cleared land than from an adjacent area of brushland.

Native grasses are usually in the undisturbed brush. But, due to the competition of the brush, the grass is small, spindling, and greatly depressed in growth. The original grass cover is more dense on areas having only light or medium brush cover. If clearing is limited to such sites, a complete land cover and full grass production can be obtained more rapidly after brush is removed. In three years after the first treatment of brush of this nature, the growth of grass was equal to that of virgin meadows and about five to eight times more than that on adjacent brushland.

Selective and non-selective herbicides have been most commonly used for brush control. They are not directly toxic to man, livestock, or the soil. Sprays of the selective herbicides seem to actually increase the palatability of pasture forages.

The selective herbicides are called 2,4-D (dichlorophenoxyacetic acid) and 2,4,5-T (trichlorophenoyacetic acid). There are many commercial formulations used for foliage sprays. The esters of 2,4-D and 2,4,5-T have generally given the best control of brush. The quantity normally recommended is about two quarts of the brush killer formulation (two pounds acid) per 100 gallons of water. Generally a satisfactory time to spray is just after the plants attain their full leaf size. The leaves, twigs and stems of all the plants should be thoroughly wet with this solution.

The species most readily affected, such as sumac, sand plum, sassafras, buckbrush, and others, may be controlled with 2,4-D alone. But combinations of 2,4-D and 2,4,5-T are needed for such species as oaks, hickory and willow. Sprays of 2,4,5-T alone are usually most effective for the resistant elms, mesquite and persimmons.

The non-selective herbicide "Ammate" (ammonium sulfamate) has been the most effective on hardwood species. However, it kills the grass along with the brush. The rate of application generally recommended is one pound per gallon of water. "Ammate" is safer to use along roadsides, fence rows and orchards, adjacent to crops sensitive to the selective herbicides. It also is effective during a longer period of the growing season.

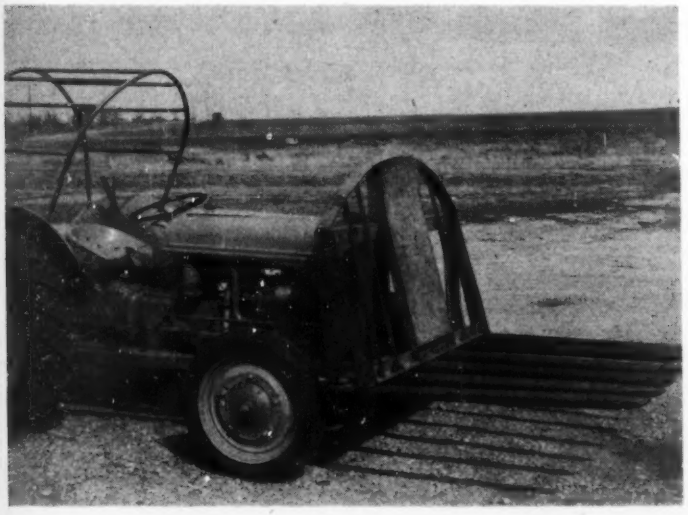
Foliage sprays are being applied with several kinds of spraying machines, such as the powered orchard type and air-blast. Those most commonly used are the motor driven orchard sprayers.

Airplanes are being used quite successfully on sand sages and mesquite but the technique has not been as fully developed for the control of scrub oak and other hardwood species for grassland development. The irregularity of both the topography and the heights of the woody plants make it almost impossible to fly at a uniform distance from all the brush. The density of the heavy tops often makes it difficult to get sufficient spray solutions on the undergrowth. This may necessitate two or three treatments over a three or four year period.

Basal-stem spraying provides an opportunity to apply selective herbicides during the dormant season. This lengthens the spraying season and eliminates the possibility of drift to susceptible crops.

Winter basal-stem treatments consist of completely wetting the bark around the lower 20 to 30 inches of each tree. The brush-killer formulations of selective herbicides containing 2,4-D and 2,4,5-T are recommended. The quantities used are about two quarts (two pounds acid) of the stock solution to 14 gallons of diesel oil. This treatment was most effective on saplings under five inches in diameter. On larger trees it may be necessary to place the solution in ax incisions encircling the tree near the ground level.

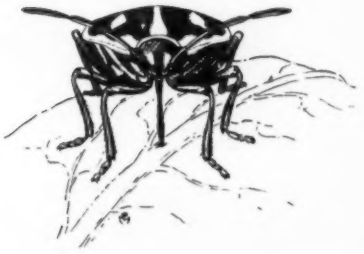
Knapsack sprayers are handy and efficient for basal-stem treatments of trees or small thickets of brush. Powered orchard-type sprayers can also be furnished with small jets for making basal-stem treatments. Other powered equipment for this purpose now being investigated includes an experimental unit made by officials of the Wiley Post Airport, Oklahoma City, Oklahoma. It consists of a framework mounted around the front and side of a small farm tractor. Nozzles mounted in the frame direct a stream of solution at the base of the plants.



The small power-lift buck rake is especially desirable because of its easy maneuverability

Mowing machine cuts brush stems up to one and a half inches in diameter during growing season

Don't Give the Bugs a Chance



By R. R. FENSKA

New conductor of this series, R. R. Fenska, is author of the well-known *Tree Experts Manual*, now being revised for second printing. In the next issue Mr. Fenska will discuss different spray materials used for control of specific diseases, as well as standard spray formulae.

A GROUP of scientists were looking at an oak tree which was apparently in a normal condition. Included in this group was an entomologist, a pathologist, a soil expert and a well known tree expert. The tree expert remarked, "I wonder how many different kinds of bugs and diseases we can find on this tree?"

They looked it over very carefully, using magnifying lenses where necessary. When they totaled up their findings they had 24 different insects and diseases. And yet the tree seemed normal; none of the pests had gotten the "upper-hand." It was a case of the "balance in nature."

Suppose this tree for some reason should have suffered adverse soil or climatic changes during the following year, what would have happened? Undoubtedly it would have fallen prey to one or more of the diseases found by the pathologist. Under normal conditions the tree was able to resist the attacks of these pests.

Now let us suppose some of the insects found on this tree should appear the following year in epidemic numbers. The balance in nature would thereby be upset and the tree eventually stripped of its foliage.

In the forest we usually have a balance in nature due in a large measure to the important part the birds play in keeping down the insect population. Also, some insects devour other insects. Bugs now practically unknown to the average person would become serious pests if their parasites or natural enemies were destroyed. Many entomologists have made the statement that without the help of birds, parasites and other natural enemies of insects it would be impossible for man to exist on this earth because the insects would destroy all living plant matter.

Then there is the serious menace of "foreign insects" which have been brought into this country within the last 50 years. These pests gained entrance by means of imported plants, and without the parasites of their native country are now the cause of serious injury to shade trees. Among our introduced pests are: Japanese beetle, elm leaf beetle, mottled willow borer, larch case-bearer, European spruce sawfly, European pine shoot moth, leopard moth, golden oak scale and the beech scale.

Some scientists now suspect that a tree in a subnormal or dying state emits an odor which attracts insects to the tree in great numbers. Thus soil conditions may be one of the factors which may upset this balance in nature for the survival of the tree.

The above illustrates why it is sometimes necessary to spray shade or ornamental trees to help restore the balance in nature. Just when and what materials to spray trees with is something about which many home owners are misinformed. The following facts should be kept in mind when you consider a spraying schedule for your trees. They may dispel the mysteries of effective control of insects

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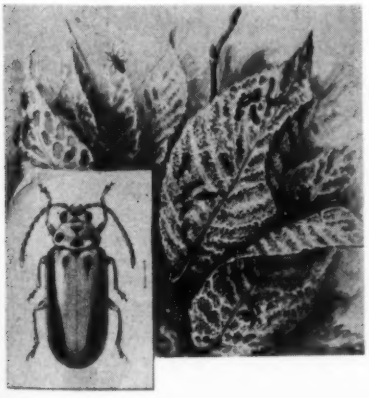
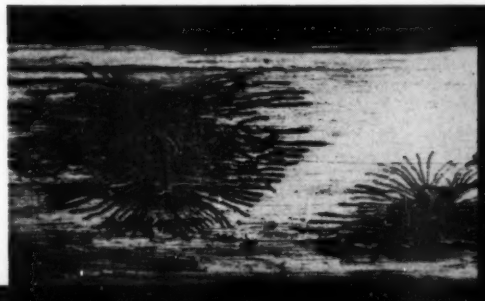


▲ **The destructive elm leaf beetle, one of our shade trees' bitterest enemies**

Elm bark beetle burrows trademark just under bark. Far right, closeup of pest ▶



He Makes People Sit on Cactus

Connoisseurs pay up to 500 dollars apiece for cacti creations by furniture-maker Herb Wood, Arizona "desert rat"

Wood finds that felling the tough old desert giants is a man-sized operation

By HENRY F. UNGER

"CACTUS Lodge."

The sign flaps lazily in the hot desert breeze. A hundred feet away stands the lodge on the site where owner Herb Wood, Arizona's champion cactus furniture maker, and his family, once lived in a small tent.

Hundreds of celebrities have visited the unusual desert home of Cactus Herb Wood. Movie companies have photographed the professional skill of the "desert rat" who turns out furniture pieces from cactus valued at $500 apiece.

Wood's Ajo Road home, eight miles from Tucson on the road to famous San Xavier Mission, is veneered entirely from cacti ribs and furnished completely with the products of the desert. It has become the cynosure of tourists visiting this section of Arizona. Wood's finely built furniture is found in homes throughout the United States. Even someone in remote China ordered a davenport back in 1936.

Herb Wood wasn't always a desert denizen. He had tasted city life with his friends in Pennsylvania, but his affectionate glance toward the wavy Santa Rita mountains convinced me that he belonged here.

Back in 1904, the cactus craftsman was chauffeur for a doctor in Pennsylvania. Those were the days when Old Dobbin felt he was slipping and on the horizon loomed the "horseless carriage."

Herb's doctor employer believed in the new mechanical invention and quickly relegated Dobbin to the glue factory. It wasn't long before a wheezing, chugging contraption made of steel replaced the horse in the doctor's stable. Wanderlust gripped the doctor, so he and Wood decided to cross the United States in the two-cylinder contraption over what today would be called "backwoods" roads. Like true pioneers they somehow made it, even though it took them 47 days to reach San Diego, California. All along the trail, horses and mules had to drag the car out of muddy roads.

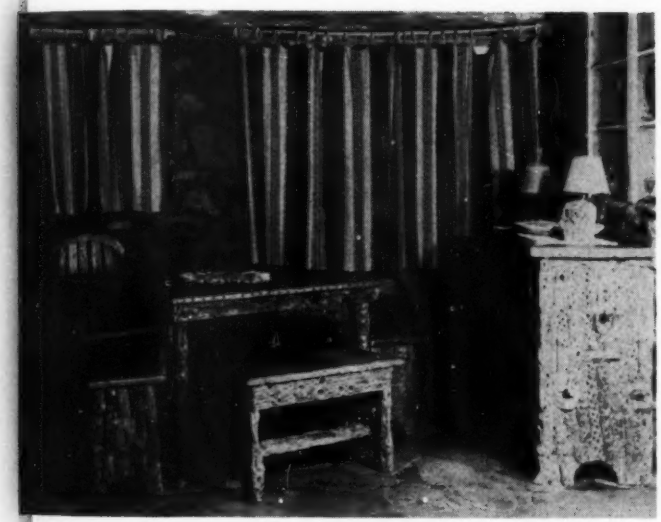
Before they even embarked on this adventurous trip, a permit to cross the United States had to be procured from the governor of Pennsylvania. This, the governor wrote out in longhand, signed and officially sealed.

"All there was in Arizona then were turkey trails," Wood recalled. "Whenever we met a team of horses we had to stop while I got out and led the horses by the automobile. We were pulled by mules in Alabama and Missouri so many times I can't remember them."

Wood fell in love with Tucson, Arizona. He was entranced by the desert. He determined that it was to be his future home. At that time circumstances prevented this and he drove on to San Diego, but later returned to Tucson and stayed for two years. Then he returned to the East, married and became the proud father of five children. Always, however, the lure of the desert lurked in his mind.

It was the 1932 depression that brought Wood back to the desert. He was prospering with an automobile

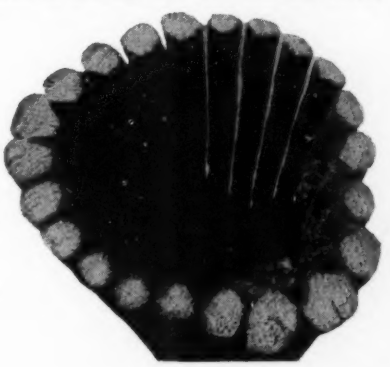
Surrounded by some of his handicraft, Wood relaxes with his wife in "Cactus Lodge," their desert home



Ea'ing off cactus may not sound very appetizing, but this breakfast furniture proves it's a treat

For Wood's precision work, cacti must be cured to just the right degree. Here is Desert Cove storing point

End view of Saguara (giant) cactus ribs, used in making heavier furniture pieces



agency in Pennsylvania and was enjoying the best of everything. Then banks collapsed and with them the fortune of Herb Wood.

Left in a state of near despair, Wood sold his home in 1933, paid off his debts and left his family—a wife, three sons and two daughters, and set out for Tucson. There, his entire fortune amounted to five dollars. He was determined this time to remain near his desert.

By dint of hard work and thrift, he put away enough money to send for his wife and family seven months after his arrival in Tucson.

It was building his own home from the desert materials that started Wood on his way to become the best known cactus furniture builder in Arizona. A site was acquired near the road leading to San Xavier Mission and the Woods moved in. At first they slept outdoors in tents and cooked outdoors over an open fire.

The timber for the house came from the desert. Rocks were dragged

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Lookout on Mt. Wilson, Oregon, where one of first Osborne fire finders was placed

The Lookout's Mechanical Eye

By HOWARD McKINLEY CORNING

Conceived in 1910 by a young Yale forester-engineer, the now universally-used Osborne fire finder is without peer in pinpointing the location of forest blazes

FORTY-ONE years ago the first Osborne fire finder, a simple yet scientific device for accurately spotting fire in green timber, appeared in our national forests. Today, this instrument patterned on the principle of the surveyor's transit and plane table is used wherever fire threatens our forests, public or private. Because of it hundreds of thousands of acres of green canopy are growing toward maturity. Significantly, the Osborne finder was first used in Oregon which now has the country's largest stand of timber.

To William Bushnell Osborne, living in Portland, Oregon, and still active in forest conservation work, belongs credit for development of the now-celebrated fire finder. "Bush" Osborne, a Yale forester and graduate engineer, came to the Pacific Northwest in the summer of 1909. Entering the Forest Service, he went to work as an assistant in the old Oregon National Forest, which stretched down the Cascades from the Columbia River to the McKenzie country. His assignment included doing something about protection of green timber, principally from fire. His approach to the problem was scientific.

At that time there was no established lookout system in Oregon, or, to any extent, elsewhere in American forests. Scattered rangers and fire guards made periodic "check looks," principally by ascending a tree or climbing to some commanding elevation in the wild terrain. If smoke were sighted they checked on it personally, or rushed to one of the few telephones in the green expanse and called the ranger station for help.

Not long after Osborne's arrival in Oregon, things began to change and the change gradually affected the entire fire protection picture in the U.S. The summers of 1909 and 1910, Osborne spent in the Mt. Hood region, in extensive reconnaissance and map making. The next two summers were occupied in establishing triangulation points based on the original government geographic surveys made in 1907; 13 control points were thus selected and marked. Within four years he had all the Cascade country of northern Oregon laid out in a single unified sheet.

It was in the early months of this field work that "Bush" Osborne, riding the mountainous country on horseback and often accompanied by his wife, got the idea for his revolutionary fire-finding instrument. Why not a fire-locating device fashioned on the principle of the surveyor's transit and plane-table? Such a device suggested accuracy of location and quick reading for immediate report; two factors of prime importance in effective fighting of timber fires.

Osborne developed his earliest rudimentary fire-locating instruments working winters after hours in his basement shop at home. In the summer of 1911 he was ready to try out his original finder. With this initial field work as a guide, a series of eight lookout positions was established; all lofty sites atop such points as Mt. Wilson, Lookout Mountain, Olallie and Beatty Buttes, and Battle Axe Mountain. To each of these, one of Osborne's finders was packed, by horse, by mule, and even on the backs of the forest guards themselves. Osborne recalls personally toting several on his own back up difficult, steep trails to their destined duties.

Mounted at these positions of elevation, each finder commanded a sweeping view of the heavily-forested Mt. Hood country. And each finder soon proved its accuracy and dependability at smoke spotting.

At first there were some problems in their use. Because they were mounted on rock pedestals or cedar posts in the open, their usefulness was affected somewhat by weather limitations. As a result, small houses

were built, first for use of the lookout guards, then for the fire-finding instruments as well.

Thus it developed that in the space of a few years functionally designed lookout structures, with a liberal use of windows for unobstructed visibility on all four sides, were placed at many locations in the Willamette National Forest. Others soon followed in numerous Northwest timberlands. In 1915 a lookout and finder were established on the snowy crest of Mt. Hood itself. This was the forerunner of our present forest lookout and fire detection system, a system the USFS fostered from the first.

Plans for machine manufacture of Osborne's instrument were begun in 1913, with Frederick Leupold, of the Portland firm of Leupold, Volpol & Co., now Leupold & Stevens Instruments, working with the inventor to perfect the design. There have been refinements since then but the basic principle of the finder remains the same.

The operation of this finder is today too well known to call for analysis. Basically, it is the surveyor's transit and plane-table, with map and compass features incorporated into one device. Each finder must be adapted for local use, since the map's center pin must correspond to the position occupied by the lookout. Complicated? Not in practice. Its few technical features are quickly mastered by the average individual. During World War II hundreds of men and women, only briefly trained in the use of the finder, served successfully as short-term lookouts in our national forests.

Sometimes the Osborne finder has "located" beyond the call of duty. For instance, nearly noon of a day late in August, 1944, a wartime "citizen lookout" atop Lookout Mountain, in the original "Bush" Osborne area, now the Mt. Hood National Forest, sighted a pin-point of smoke in the gray-green forest far to the south. From his position in the glass-enclosed tower on the rocky peak, he had only to step to the fire-locating instrument and turn the disc so that its sights were in line with the distant smoke puff.

This done, he glanced at the azimuth circle that rimmed the instrument, jotting down the reading there —179 degrees; then at the vernier scale—three and a half inches. Quickly he eyed the intervening landmarks, noting their locations on the area map covered by the finder. His steel mileage tape read only to ten miles

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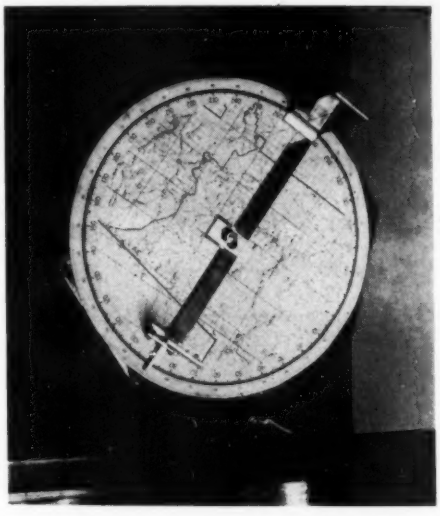
Osborne with another of his fire protection devices, the photo recording transit



The original Osborne model (1910) was called the Oregon fire finder

U. S. Forest Service photo

Lookout sighting smoke from atop Little Baldy mountain can quickly pinpoint location with reading from finder

Abuses Under the Mining Laws

CONCLUSION

YOU'RE

AFTER going on field trips with U. S. Forest rangers in Colorado, New Mexico, and other states in the west last summer, it became more and more apparent that the Forest Service isn't the only federal agency being bedeviled by locusts in human form who are gobbling up huge areas (in the aggregate) of public domain. The Bureau of Land Management, too, is in the same fix.

In fact, these two agencies, who between them administer the great bulk of public domain, are brothers in trial and tribulation. Both are facing the vexatious problem of what to do with the phony "miner" who is legally grabbing off thousands of parcels of your land and mine under the false pretense of going into the mining business.

Before citing some typical case histories of highly questionable land acquisitions, it seems pertinent to give a short refresher course in the overall situation:

Over-liberal federal mining laws, so full of loopholes that they invite flagrant misuse, are being employed by morally dishonest persons to obtain legal possession of choice tracts of public domain, particularly in the western states. The whole setup amounts to a gigantic land steal, and you, the people of the United States, are being robbed of your priceless heritage of natural resources.

The workings of this unsavory deal are quite simple. A set of archaic laws applying to acquisition of public domain for mining purposes, is being so warped and twisted that today public lands are being mutilated. The federal mining laws of 1872 gave a prospector clear title to a piece of public land, provided he made a "discovery" of minerals, staked a claim, and fulfilled certain other relatively simple requirements.

Eighty years ago that was a wise policy. America was growing — it needed minerals badly, and every encouragement was given the prospector. The amount of mineralization necessary to warrant a "discovery"

The Bureau of Land Management—like the U. S. Forest Service—is being plagued by locusts in human form who are swarming through loopholes in our mining laws to legally mutilate the public domain

Encouraged by lax mining laws, despoilers have even scooped the topsoil from public domain until stopped by court action

Quite a layout for a "miner." Under the law the claimant can use the timber for his mine

E Being Robbed!

By CLEVELAND VAN DRESSER

was very low: the miner got the use of all the surface resources—timber, pasture, water, and so forth—on the land he staked out as a mining claim.

A "lode" claim (mineral confined to a fissure or vein in the rock) embraced an area 1500 by 600 feet—about 20 acres. "Placer" claims (mineral in loose soil) were limited to exactly 20 acres for any one locater, and not more than 160 acres for any one claim located by a group of individuals.

Also, the generous mining laws provided that if a locater did $100 worth of assessment work each year (a stipulation often waived by Congress) he could hold a claim indefinitely. If he did $500 worth of development work, paid about another $500 for survey work and $5 an acre (only $2.50 for placers) he got a "patent" on his claim, which means he owned the land outright. Furthermore, claims did not have to be registered with the federal government, only within the county where the discovery was made.

These, briefly, are the mining laws of 1872. *They are still in effect today.* And the way they are being used is the basis of the biggest collective land grab of the 20th century.

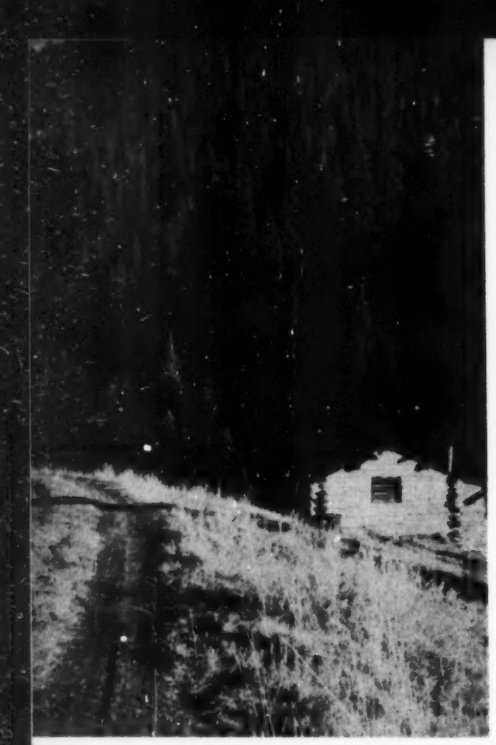
Consider the "discovery" proviso of these laws. As remarked before, the mineralization content necessary is so low that fulfilling that requirement is easy. So easy, in fact, that much of the more than 300 million acres of public domain is vulnerable to private seizure on that basis alone. Sole stipulation as to mineral is that it be sufficient to justify a prudent man in the further expenditure of time and money in the development of the claim.

Next, consider the "development" work necessary to obtain a patent—$500. How are you going to prove a man hasn't spent $500 working on his "mining" claim? It's a case of the miner's word against that of Uncle Sam, with the burden of proof falling on Mr. Whiskers.

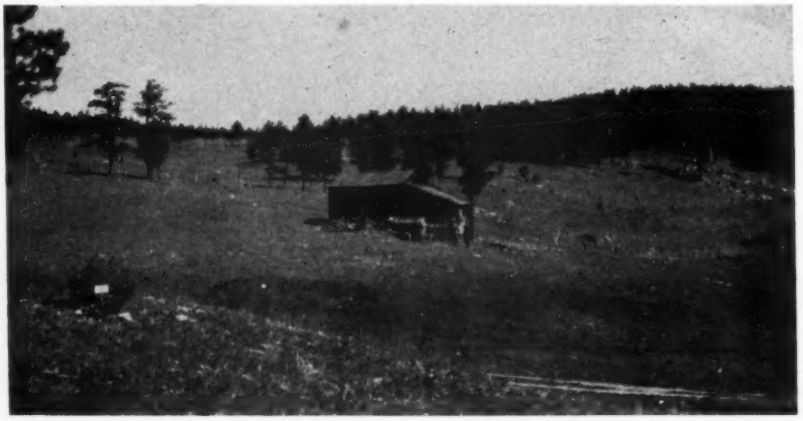
More than that, in 15 of the past 20 years Congress has conveniently decreed a claimant could hang on to a piece of land by simply posting an "intent to hold" notice, and doing no work at all on the property in the meantime.

The "location notice" stipulation has really put the federal government on the spot. Neither the Forest Service nor the Bureau of Land Management has the foggiest notion of how many mining claims are staked out on public domain, simply because such claims are not filed with either of them but at the county seat, as has been stated before.

As a matter of fact, literally thousands of mining claims are never heard of by the federal government



This claim is situated so that it prevents access to timber in background



Owner of this "mining" claim grazes stock on pasture included with claim

until the locator applies for a patent. Of course, any ranger investigates activity on the land in his jurisdiction, but often so little is done before applying for patent that it escapes notice.

Through the loosely woven net of the mining laws slips the land grabber, and his number is legion. He has utterly no intention of mining, but sees the opportunity to obtain and hold choice tracts of public lands. Upon these lands he erects filling stations, hot dog stands, beer parlors, motels and private homes. He sometimes sells the timber from the larger tracts and grazes his cattle on pasture land. Upon occasion, if he has obtained possession of suitable terrain, he posts it and establishes a private hunting or fishing preserve. In most cases, these things are done within the law.

Upon very rare occasions, the misuse of the extremely lax mining laws is so blatant that a protest is filed by Uncle Sam. Thereupon a battle for possession ensues, with the federal government on one side and the phony miner on the other. Usually title to the disputed land is settled by the Department of Interior through its Bureau of Land Management, sometimes in the public courts.

The Bureau of Land Management is charged with administration of huge areas of public domain, as is the Forest Service, and its inspectors are constantly running into highly questionable cases of private acquisition of public lands.

In the actual case histories about to be related, I found it difficult to believe that such chicanery is actually being practiced. Accordingly, I checked with Marion Clawson, director of the Bureau of Land Management. The cases are true, all right—so if you can stomach a few typical examples of what to me is downright thievery, here goes:

In Idaho a rugged individualist staked out a 20-acre mining claim within a federal grazing district. There was a well on the property which he proceeded to clean out and get in operation. Next he put a small herd of cattle on the land which he grazed without permit, while using water from the well. And finally—and I'm quoting the BLM inspector who looked over the claim, "His actual mining operations to date are nil."

You'd think that the Bureau of Land Management could bounce that so-called "miner" out of there in a hurry. But such are the loopholes in the mining laws that such reprehensible characters can stall around and by legal shenanigans retain the use of the land for five years without paying anything.

Here's a case that has the timber interests gnashing their teeth: Of more than 32,000 acres in placer claims in the Rogue River National Forest in Oregon, some 8700 acres are in magnificent timber, which the Forest Service (and that means you) acquired by exchange at a cost of $40 per acre. The locators of these claims have leased out much of this acreage (remember these are *mining* claims) and many of the lessees have the idea they are entitled to the valuable trees.

If they get away with it, they will be seizing public property, which to my way of thinking, is nothing short of robbery. The payoff on this deal is that the land has been examined by mining engineers and no trace of either metallic or non-metallic minerals has been discovered. The location notices on the claims state that there is gold in gravels and mixed deposits of pumice and volcanic ash. Again I quote from the BLM inspector: "Of approximately 150 samples taken, not one trace of gold was detected."

Here's yet another case that should interest the Izaak Walton League: Recently a placer claim was located on the west bank of the Rogue River in Oregon. An abandoned cabin on the place was reconditioned. It made an excellent fishing camp, and everyone knows the Rogue River has a fine piscatorial population.

Remember, the mining laws give the use of the land to the locator of a mining claim. Which means that in this instance, the "miner" could post the Rogue River for the length it ran through his claim and prevent anyone from wetting a line. This, in public domain! And once more, for authenticity, the BLM inspector says: "No mining development was ever made on this claim."

Along this same line, three placer claims were located not far from the Rogue River angler. One of the locators was interviewed by a BLM inspector and blandly asserted that he and his friends planned to retire and settle on the claims. "Good hunt-

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Straight-growing oaks soon dominate new forest

Oaks survive on floodlands where many trees die

From Old Field to Forest

From ugly weed patch to outdoor laboratory. That's the drama of forest succession on an abandoned field

By HENRY S. KERNAN

OUR farming ended two decades ago when Jerry, the last of the stock, trotted out the drive and down the road, sprightly for all his years and for all that the tug at his reins was a stranger's. Yet the land he was leaving was not rocky or sterile as is that of so many abandoned farms. It was the deep sandy loam of the glaciated Piedmont where it makes a final thrust northward from the Jersey boundary into New York.

Two hundred years earlier these 50 acres had been part of a grant to one Mynheer Polhemus. This Dutchman and a dozen restless successors farmed with the careless tilth of earlier generations. Trees were left to shade lanes and mark boundaries. Odd field corners grew up to brush and then to groves. Along the edge of swamp and river, willows, elms and oaks took root as they had for ages past. An old and abandoned railway cut became a briar-patch haven for rabbits and songbirds.

Twenty years ago there was even a woodlot—or rather the poorest remnant of one. It stood upon five acres of low ground, placed between the meadow pasture and the cow lane. Back and forth the cattle had shambled day after day for years, browsing, trampling and breaking as these heavy-footed and voracious animals inevitably do among trees.

Only a scattering of thick-bark and spreading oaks escaped damage. Between them were clumps of red maple and grey birch, with here and there a blueberry bush or a few spindly elms. Cow paths split and joined and wove about between. Pasture and woodlot make a poor mixture and too often become such neglected wastes.

Today this ground is hardly recognized as the same. A vigorous growth of trees and shrubs has made an outdoor laboratory of an ugly weed-patch, where the drama of forest succession can be watched year by year as the interplay of species works toward the dominance of a fine woodland. The timber from a suburban forest (on clear days we can see New York) is no longer a factor; but beauty has returned in abundance.

Only traces of the cow paths now remain meandering across the new forest floor. This ground, once pounded bare, is again loose and densely shaded. Seedlings become scarcer each year, and even the creeping plants like ground pine, moss, partridgeberry and wintergreen have a harder time holding up against the deepening leaf mold.

But the shrubs are now fast disappearing, even though they were the first to seed onto every sun-drenched spot and grow almost at once into impenetrable thickets. Of some 15 species, perhaps only the arrow-wood will remain in another score of years.

Surely the light-loving blueberries and bayberries will go; and then the shadblow will be troubled in finding enough sun to ripen the reddish-purple berries. Where once you could scarcely see a dozen feet, now the eye can travel, in places, 30 yards before being stopped by a background of criss-crossing tree trunks.

These are often the white and black patches of grey birch. This species, classed as a "weed," is not the larger and chalkier white birch with which it is sometimes confused. Rather is it an invader of old fields and burns and sand wastes, where the pointed, half-brown leaves hanging loosely from whip-like branchlets and the slender, crooked trunks are a familiar sight.

They are rarely straight, but are blown or weighted by wild grape vines and catbriars into long curves. At 20 feet high they are already old and toppling. Each season will see

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Arboretum's tropical lagoon

TARZAN'S Jungle . . .

By WELDON D. WOODSON

Now known as Los Angeles County's arboretum, this once-famed rancho also doubles as filmdom's "wildest Africa"

WHEN a Hollywood director gets ready to film a Tarzan picture, he doesn't have to go on location in Africa, or any of the other continents. Instead, he and the cast merely motor over to Arcadia, a few miles northeast of Los Angeles.

There on the home site of the old Rancho Santa Anita is one setting the script invariably calls for—a lagoon flanked by a jungle-land of trees and brush, much of which is of tropical origin. Not only have many scenes of the Tarzan pictures been made here, but the background has served a host of others, including the Jungle Jim pictures, the Bambi series and *Road to Singapore.*

Actually the 120 tree-studded acres comprise the Los Angeles State and County Arboretum. The fact that movies are made here is only a point of interest. Acquired by the State of California and Los Angeles County in 1947 for development as a botanical garden and arboretum, a portion of the area will be opened to the public sometime this year.

Here can be seen plants from all parts of the world with a climate similar to Southern California. There are

Lex Barker, latest in a long line of Tarzans, surrounded by natives—and lush growth

. . Hollywood Style

Planted a century ago, many plants in the jungle around this ornate old coach barn today are prize specimens of the arboretum

Once-luxurious rancho buildings give the arboretum an historic atmosphere

species from western Australia, South Africa, the central Andean section of South America, and parts of China and India.

"That exotic plants mean so much to the present landscape of Southern California is not fully realized," states Dr. R. J. Seibert, the Arboretum's director, in explaining its purpose. "Nor is it fully realized that there is no institution here devoted to the study of these exotic cultivated plants as a whole. New plants from many parts of the world are or can be made specifically adaptable to this region — plants which can and will add to the further beautification of our gardens, parks and streets, and which could have direct economic bearing on the future of Southern California.

From the earliest days, the site of the arboretum has been associated with trees. Amid the giant oaks, the Indians pitched their tepees. In 1771 the Mission San Gabriel was established, and it became known as Santa Anita, a mission rancho. From these oaks were hewn the timber for the mission structures. Due to the abundance of springs, the Indians named the spot "Ahupquigna," meaning "A Place of Waters."

When the padres deeded Santa Anita to an Indian woman of the Comicrabit clan, in appreciation of her housekeeping services, its history assumed a new aspect. Shortly thereafter she married Hugo Reid, an educated Scot engaged in coastal trade. In 1839, he built a large L-shaped adobe and surrounded it with extensive vineyards and a variety of orchard trees, including 40,000 grape vines, 21 fig trees, seven plums, 25 pears, five apple trees, 32 oranges, 40 pomegranates, two honey mesquite trees, 240 peaches, eight blood oranges, three walnuts, seven olives, 40 lemons and a tuna (cactus fruit) patch.

After visiting the Reids in 1844, historian William Heath Davis wrote

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Cooperative demonstrations in the Tennessee Valley are helping solve the problem of deficit cutting on private timberlands

By KENNETH J. SEIGWORTH

Progressive demonstrations include practical cutting guides for the different forest types and conditions

Teaching Timber Harvest K

THE recent report of The American Forestry Association on the progress of forestry between 1945 and 1950 ends on a note of dilemma in its evaluation of the "knottiest problem facing forest administrators" — how to overcome deficit cutting on private woodlands.

The report does, however, offer six suggestions designed to help eliminate the dilemma, the first four of which, in my opinion, are being applied in timber harvesting demonstrations as now organized and conducted in the Tennessee Valley.

Included in the AFA report's six suggestions are: 1.) More harmonious, closer working relationship between government, states, industries and private owners; 2.) More efficient pattern of government-to-state-to-private owner; 3.) More attention to selling the economics of good forestry; 4.) Development of practical timber cutting guides for landowners for each forest type or condition; 5.) Expansion of diversified wood markets; 6.) Adequate system of roads for accessibility to markets.

The type of demonstration being carried on in the Tennessee Valley isn't especially original, but I believe much more of this sort of thing is needed in the Tennessee River Watershed. The following information on who participates, what techniques are used, and the results to date are contributed for the benefit of anyone who might like to give such demonstrations.

As 1950 came to a close, here in

Master of ceremonies "briefs" the group on what the day's program will include

Actual sales are made during the demonstrations. Products from one selectively harvested area brought $178

A timber buyer explains why the owner could get as much as $96.50 for just this one white oak log

t Know-How

Why these logs will not bring the top veneer prices is explained to group by a tie and sawlog operator

brief is how forestry looked to us in this region: An exploited, inadequately protected, but vigorous mixed hardwood and pine forest covered 54 percent of the total watershed area. Ownership was divided among 160,000 units, mostly small. Timber harvesting was spread out among 4000 sawmill operators (many of them part-time and marginal) and 1000 secondary industries. Conscientious management was not the general practice.

On the other hand, value of the forestry business amounted to $200 million a year. Public understanding of the relation between the forestry programs and watershed and dollar values was growing. Foresters had known for a long time that soil, climate, and species combine to produce an attractive annual growth of about seven percent, and this fact was getting across to an increasing number of woodland owners.

There were almost 300 case examples of planned forest protection and management covering half a million acres of private lands and many other examples on national and state forests. State protection forces were rapidly catching up with the fire control job. More than 6000 landowners were planting seedlings each year. Markets for forest products were active; prices were attractive. There were numerous public and private conservation organizations interested in forest development.

The time seemed right to attempt to get literally hundreds of landowners and timber operators together in the woods for the purpose of showing them that their interests in harvesting only economically mature timber are mutual and not in conflict.

It also seemed the time to marshal the support and participation of all interested groups — public forestry and agriculture, industry, landowner, and interrelated organizations — in realizing the first objective.

The obvious need was for a workable device that would appeal to a wide range of interests. The glimmer of an answer was suggested by the question: Why not combine ideas which have heretofore appealed to landowners and industries separately? Thus the experiences of many persons on extension results and method demonstrations, the Crossett Farm 40, sawmill schools, etc., were

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. . . In the South

Thinning for Pulpwood

By T. A. LIEFELD

IN the Southeast these days many of our young pine stands are growing up too thick as a result of improved fire protection and the leaving of adequate seed trees.

It is not unusual to find numerous young stands of southern pine, six to ten years old, with 50,000 to 60,000 stems per acre. But at 30 years of age, competition will have reduced these same pine thickets to about 350 trees per acre, and at 50 years there probably will be fewer than 200 stems remaining. The healthier, more vigorous individuals gradually crowd out the weaker ones.

As with all of our farm lands, there is considerable variation in the productive capacity of our forest soils. Each acre of forest land has a certain maximum carrying capacity. When this maximum capacity is exceeded, as in overdense stands, the crop trees will suffer from reduced growth. Sometimes such stands will stagnate to the point where practically no growth will take place.

It is this growth from year to year that primarily decides how profitable your timber crop will be. You can raise southern pine to good pulpwood size in 15 years when properly thinned, but the same stand of trees could take 50 years to reach good pulpwood size if left unthinned.

Too much crowding will result in slow growth. On the other hand, too few trees per acre will net you only short, bushy, limby trees that will produce knotty lumber, and even poor pulpwood. In a young stand the trees should crowd each other somewhat, so they will develop tall, straight stems. The lower branches will be shaded, and will die. Clean stems will thus develop, free of branches and knots.

Stands of longleaf and slash pine can be handled so as to produce a good return from turpentine, in addition to wood products. If you are planning to grow trees for turpentine as well as wood, the trees should be spaced wider apart than they would be if grown only for wood products, because a profitable turpentine tree must have a larger crown than a tree grown for high-grade sawtimber or poles and piling.

If the stand has not seeded in too thick, say not over several thousand stems per acre, it will be good business to delay the first thinning until the trees to be removed are of merchantable pulpwood size—six to eight inches in diameter, breast high. However, the stand may have seeded in so thick that you will have to make an earlier thinning, before the trees have reached pulpwood size, to avoid stagnation.

Such an early thinning should leave about 1500 to 2000 of the best stems per acre, as uniformly spaced as possible. This thinned stand would then be left to grow into merchantable pulpwood size, when the trees would again be crowding to the point where another thinning would be necessary.

The basic objective in all thinning of young stands is to permit the trees to make rapid growth, and yet not give them so much room that they become bushy and limby. They should be thinned at rather frequent and regular intervals, say every six to eight years. They may be thinned in this way until the crop trees become mature, when they will be cut for large-dimension, high-grade products such as sawlogs, poles, and piling.

There are no set rules for spacing trees. As a rough guide, leave about five feet between the crowns of adjoining trees, so they will again grow together in six to eight years. Some foresters use a rule of thumb and add two to the average breast-high diameter of the trees in a stand. This number expressed in feet, is used to

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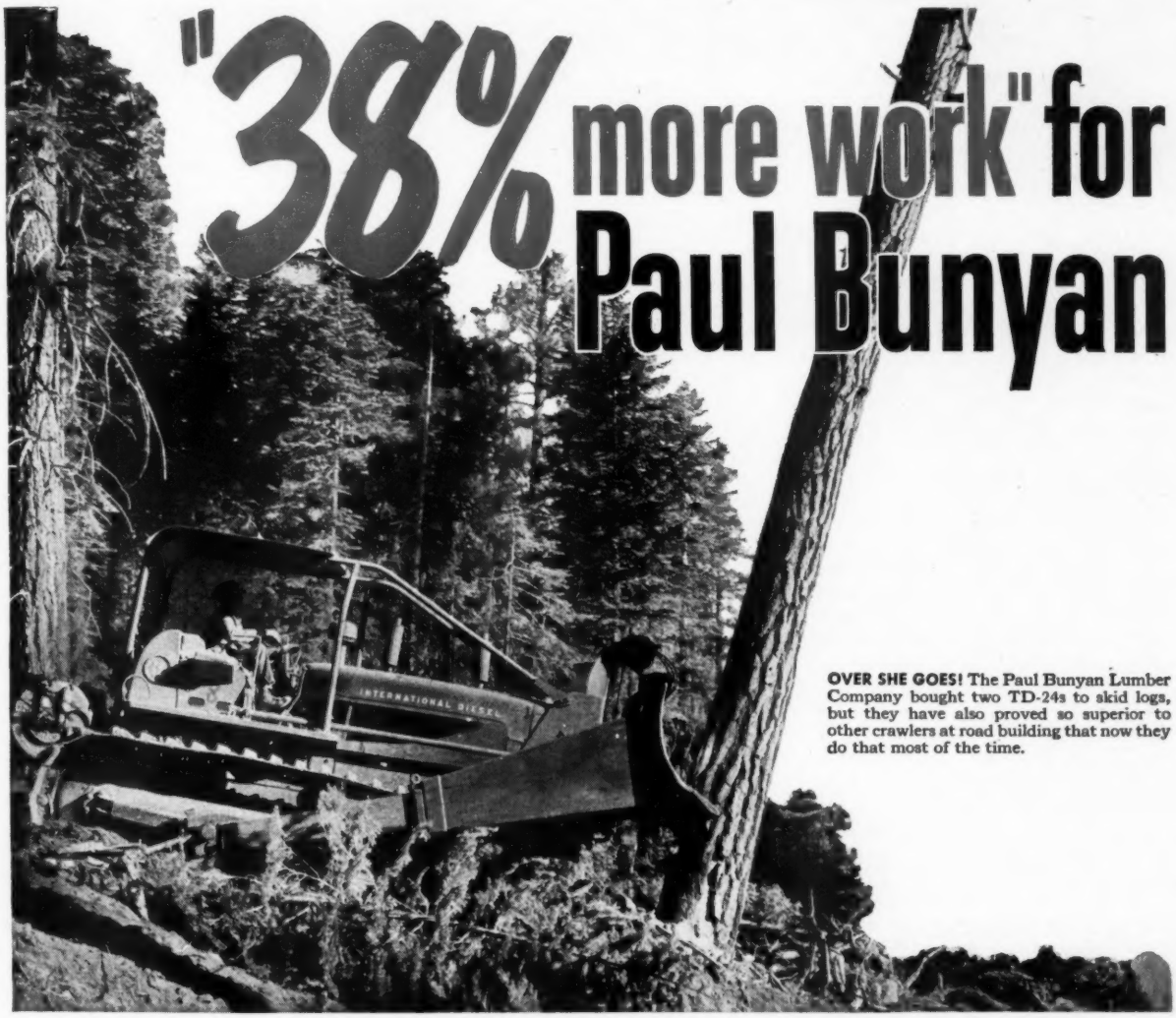
A pulpwood thinning would help this southern pine plantation. Unthinned stands often require 50 years to reach pulpwood size

"38% more work" for Paul Bunyan



OVER SHE GOES! The Paul Bunyan Lumber Company bought two TD-24s to skid logs, but they have also proved so superior to other crawlers at road building that now they do that most of the time.

Two "Big Red" TD-24s set record clearing roads 9,000 feet up on Round Mountain

"The best thing to happen to our woods operation in years," says General Manager K. L. Merrill, of the Paul Bunyan Lumber Company, Susanville, California, "was getting two International TD-24s.

"The way those mechanical Paul Bunyans build roads is amazing. They'll doze big trees from the right-of-way in a minute and a half—trees our other tractors would worry over for half an hour or more!

"We figure that on most jobs our TD-24s do 38% more work than our other tractors. This performance really pays off here on Round Mountain, high in the High Sierras—especially from September on, when we begin cold-decking and log at top speed to beat the deep winter snows!"

What makes "Big Red" the Champ of the Woods?

TD-24 POWER—148 maximum drawbar horsepower—MORE POWER THAN ANY OTHER CRAWLER ON THE MARKET!

TD-24 SPEED—8 forward speeds up to 7.8 mph, 8 reverse up to 7.7 mph—GIVES YOU THE SPEED TO HAUL BIGGER LOADS FASTER.

TD-24 STEERING—Fingertip control for pivot turns, feathered turns, and turns with power on both tracks—MORE MANEUVERABILITY THAN ANY OTHER CRAWLER ON THE MARKET!

That's just the beginning. There are many more reasons why the TD-24 can outwork all comers. Ask your International Industrial Distributor for details. And ask for details on his fast field service and complete shop facilities. Get the low-down! You'll be a TD-24 man from then on in!

INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILL.

POWER THAT PAYS INTERNATIONAL HARVESTER **INTERNATIONAL**

By DOROTHY DIXON

FOR nine weeks, July 5 to September 13, Trail Riders will be in the saddle exploring the wilderness from Montana to New Mexico and from the Rockies to the High Sierras, while two groups of adventurous Trail Riders will take to canoes, in July, and paddle their way through the chain of lakes in the wild Quetico-Superior country of northern Minnesota. In all, 14 expeditions are planned for the 1952 season.

For those who like to pioneer, the High Uintas Wilderness in the Ashley National Forest of Utah and the magnificent Glacier Peaks country in the Chelan, Mt. Baker and Wenatchee National Forests of Washington will offer thrills aplenty. Trips to the San Juan primitive area in the high country of the San Juan National Forest of Colorado and the Gila Wilderness of New Mexico will entice many riders who have been requesting their restoration to the trail riding schedule.

The High Uintas Wilderness Area is situated on the main divide of the Uinta Mountains in northeastern Utah. One half, or around 115,000 acres, lies within the Ashley National Forest. This region is rich in scenic, geological, biological, botanical and recreational features. High rugged mountain peaks and expanses of ridges typify the area, and below timberline stretch extensive stands of lodgepole and Engelmann spruce. Numerous lakes and clear mountain streams afford eager anglers excellent opportunities to fish for rainbow, brook and cutthroat trout.

Bob Davis of U Bar Ranch, Neola, Utah, has been engaged to outfit the Uintas party. He comes highly recommended by the Forest Service and by Professor J. V. K. Wagar of Colorado A & M College, who has served as AFA representative on a number of trail rides. During the school year, Bob serves the Department of Athletics at Colorado A & M.

Arrangements have been successfully completed for a second pioneering expedition. A party of 25 Trail Riders will explore the high, rugged country in the North Cascade Wilderness of the Chelan, Mt. Baker and Wenatchee National Forests in north central Washington.

Here, deep in the Cascade Range, is one of the most scenic gems in the nation—Lake Chelan. It is a ribbon of blue, deep-sunk in a green forested canyon — 55 miles long and one to two miles wide. This "Land of Beautiful Water" comprises 801,000 acres and is characterized by lofty peaks, living glaciers, heavily timbered slopes, lush mountain meadows, swift streams and open grassy ridges and basins.

Small streams cut deeply into rock and tumble from snow-fed sources down to the lake. Mountain goats and deer inhabit the region, and the lake and streams are stocked with rainbow and cutthroat trout. Bob Nicholson, of Spanaway, Washington, who has been packing for us for several years — and doing an outstanding job—will outfit the party on this 90-odd mile trek.

The revival of the Gila expedition has been made possible through the cooperation of the Forest Service and Ray E. Elms of Los Olmos Guest Ranch, Glenwood, New Mexico, who will outfit the party. This storied wilderness of the Gila is a country of timber and grassland, of winding canyons, of buttes and mountains that reflect astonishing colors in the sun. On the west are the famed Mogollon Mountains; on the east the Black Mountain Plateau. Through its heart courses the Gila—the river of mystery.

In the deeper regions of this 600,000-acre primitive area may be found Pueblo cliff dwellings that stir the imagination and are fun to explore.

WITH THIS page, we introduce a feature devoted to The American Forestry Association's Trail Riders of the Wilderness trips, the ten to 13-day adventures into remote areas of our national forests which this summer will be offered members for the 19th consecutive year. In succeeding months there will be news for and about Trail Riders, so contributions from veterans and tenderfeet are welcome.

AFA'S TRAIL RIDERS OF THE WILDERNESS

1952 Expeditions

Flathead-Sun River Wilderness—Flathead, Lolo and Lewis and Clark National Forests, Montana. Two 12-day expeditions—July 5 to 16 and July 16 to 27. Approximate cost, $215.

Quetico-Superior Wilderness—Superior National Forest, Minnesota. Two 10-day expeditions by canoe—July 6 to 15 and July 19 to 28. Approximate cost, $175.

Sawtooth Wilderness — Sawtooth and Boise National Forests, Idaho. Two 11-day expeditions—July 22 to August 1 and August 5 to 15. Approximate cost, $197.

High Uinta Wilderness, Ashley National Forest, Utah. One 10-day pioneer expedition—July 29 to August 7. Approximate cost, $215.

Maroon Bells-Snowmass Wilderness—White River and Gunnison National Forests, Colorado. Two 10-day expeditions—July 31 to August 9 and August 13 to 22. Approximate cost, $215.

North Cascade Wilderness — Chelan, Mt. Baker and Wenatchee National Forests, Washington. One pioneer expedition is August 11 to 23. Approximate cost, $215.

San Juan Wilderness, San Juan National Forest, Colorado. One 10-day expedition—August 6 to 15. Approximate cost, $215.

Cascade Crest and Goat Rocks Wild Areas, Gifford Pinchot and Snoqualmie National Forests, Washington. One 13-day expedition—August 11 to 23. Approximate cost, $215.

Inyo-Kern Wilderness, Inyo and Sequoia National Forests, California. One 13-day expedition—August 26 to September 7. Approximate cost, $205.

Gila Wilderness, Gila National Forest, New Mexico. One 11-day expedition, September 3 to 13. Approximate cost, $215.

"PACKAGE" SADDLE TRIPS

Lookout Mountain, Chickamauga-Chattanooga National Military Park, Chattanooga, Tennessee. Three 3-day (weekend) horseback rides—April 11, 12, 13; April 25, 26, 27; May 9, 10, 11. Approximate cost, $93.85.

Write or wire for detailed information and reservations

THE AMERICAN FORESTRY ASSOCIATION

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But the real glory of the Gila is in its canyons, as colorful as the Grand Canyon, though in miniature, and as wild as the antelope that poise on their rims.

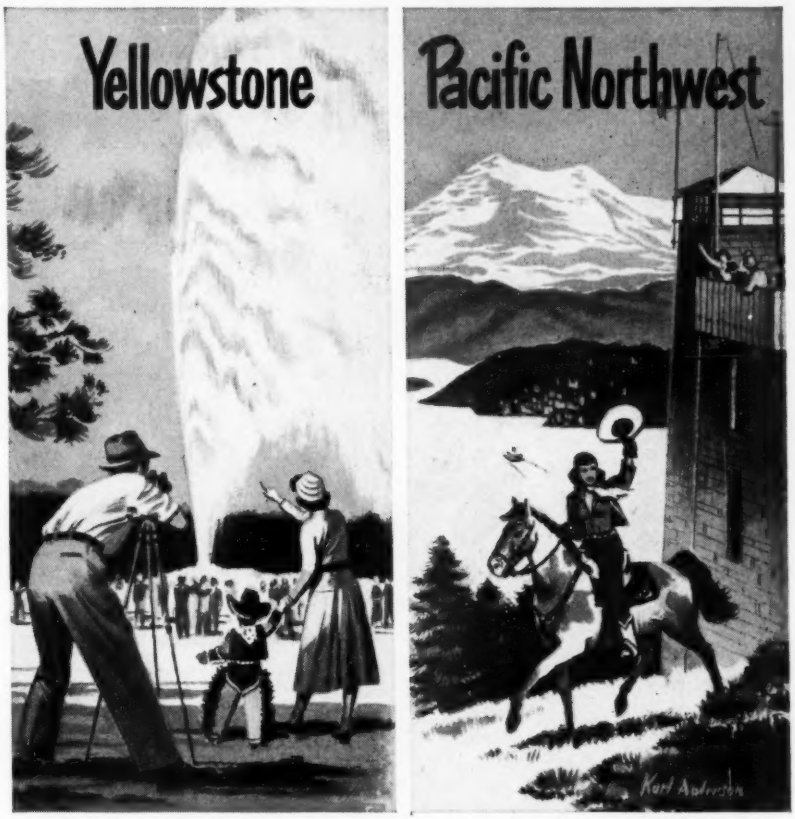
Trail Riders are again invited to explore the little known country in the heart of the mountainous San Juan National Forest in Colorado. Northeast of Mesa Verde National Park and under the very rim of the Continental Divide, the Needle Mountains fling up their rugged crest to form one of the most dramatic and colorful wilderness areas remaining in continental United States. Bold Windom Mountain, 14,084 feet in elevation, and Sunlight Peak, 14,053 feet, dominate this wild and rugged land.

Through the kind interest of Miss Hortense Friedman and Dr. H. Calvin Fisher, who are known to many Trail Riders, we have been able to secure the outfitting services of Joe and Carl Hotter, of Grand Trophy Guest Ranch in Durango. Ed Wright, one of the old-time rangers of the West and known to many Trail Riders who have ridden the Maroon Bells-Snowmass trails, is now supervisor of the San Juan National Forest.

Again offered, of course, are our well established, popular expeditions in the Flathead-Sun River country, Montana; the mountain and lake-studded Sawtooth Wilderness in Idaho; the spectacularly beautiful Maroon Bells-Snowmass region of Colorado (which, incidentally, will be outfitted again by Mrs. Rich Thomson); the Cascade Crest and Goat Rocks wild areas in Washington; and the Inyo-Kern, California trip which features the climb to the top of Mt. Whitney.

Last year, the AFA successfully conducted three "package" saddle trips on Lookout Mountain, Chattanooga, Tennessee. These were inaugurated for our members who do not like overnight camping. Similar trips will be scheduled this spring for the week ends of April 11, April 25 and May 9. Each trip will be limited to ten riders, and the headquarters will be the PanOram Hotel, located on Lookout Mountain and overlooking the city of Chattanooga.

Smoke Jumper Movie — The saga of the U. S. Forest Service smoke jumpers is dramatically told in the movie, *Red Skies of Montana*, which recently had its premiere in Missoula, Montana. Twentieth Century Fox filmed most of the action in Montana forests. Richard Widmark heads an all-star cast.



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THE MILWAUKEE ROAD

INSECT, DISEASE PROBLEM STRESSED IN FOREST SERVICE REPORT

CITING substantial progress in reducing damage caused by forest fires, Lyle F. Watts, chief of the U. S. Forest Service, stated in his recent annual report to the Secretary of Agriculture: "We have not made corresponding progress in the reduction of losses from forest insects and diseases."

In calling special attention to the problem of forest insects and disease, Chief Watts stressed the importance of recognizing the extent of pest-caused destruction — greater during the past ten-year period than the total of timber destroyed by fire. During the 1934-43 period, losses from fire averaged 460 million cubic feet of timber annually, while an estimated 622 million cubic feet were lost during each year of the same period to insects and disease. The report reminded that this timber is badly needed for defense, housing, industry and home use.

Seeking support for increased attention to control of these pests, Chief Watts pointed out the increasing contribution the national forests are making to the nation's supply of forest products. The record cut of approximately 4688 million board feet during 1951 returned to the U. S. Treasury $1,194,000 more than the total cost of protection and management on the national forests — and production could be stepped up another 50 percent by building access roads into remote areas.

The report lists bark beetles among the most destructive forest insects. The larvae of these beetles feed under the bark of trees next to the wood. One of the most serious infestations of bark beetles is in Colorado where the Englemann spruce beetle in the past ten years has killed more than four billion board feet of timber on national forest land, an amount equal to the lumber for 400,000 five-room houses. This is 16 times more timber than was killed by fire in the past 30 years in the entire Rocky Mountain region.

The Forest Service commenced control of the beetle in 1950, using new techniques (see June 1951 issue, "Battle of the Beetles") developed by the Bureau of Entomology and Plant Quarantine. The control work must be continued in the summer of 1952, and follow-up control for several years thereafter will probably be necessary, the report indicates.

Other serious pests, according to the report, included such leaf-eating insects as the spruce budworm, tussock moth, larch sawfly, tent caterpillar and gypsy moth. During the past two years the Forest Service, the State of Oregon and private forest land-owners cooperated in a control project against the spruce budworm. Some two million acres of infested timber have been successfully treated through aerial spraying. Present estimates are that treatment will be needed on about one million additional acres during the next two years.

"Like mankind, the trees of the forest are subject to many ills," the chief forester said. Various fungi and bacteria produce rusts, wilts, blights and rots. White pine blister rust is one of the most serious forest tree diseases because it threatens to wipe out one of the country's most valuable commercial trees. Since the disease is spread by gooseberry or wild currant bushes, it can be controlled through eradication of these plants in white pine forest areas.

Other destructive diseases are brown spot, which attacks the southern longleaf pine, littleleaf disease of short leaf pine, oak wilt, and pole blight which is attacking western white pine of pole timber size.

The Department's Bureau of Entomology and Plant Quarantine and the Bureau of Plant Industry, Soils and Engineering give the Forest Service technical assistance in insect and disease control on the national forests. When an outbreak is reported, the cost is weighed against the value of the timber involved to determine if public money should be spent on control work. Where private land is intermingled with national forest land, cooperative agreements for insect control may be made among the federal agencies, the states and the private landowners.

Many of the forest insects and diseases are so widespread and well established that complete eradication is not feasible, but Mr. Watts believes it is possible to control the most serious forest pests and keep new pests from entering the country.

To keep timber losses from insects and disease as low as possible, the chief forester recommends more federal research on insects and disease, a well organized system of detecting infestations, and quick counter attacks.

He believes good forest management that maintains vigorously growing stands will help considerably in insect and disease control since healthy trees are more resistant to many of the diseases and insects than over-mature ones.

Protection of forests against fire also is necessary for eventual forest abundance. Mr. Watts commended the forest fire prevention campaigns carried on by state and federal forest services with the sponsorship of the Advertising Council and through "Keep Green" programs.

Good forest management is another essential part of the program outlined by the chief forester. Even if all losses from fire, insects and disease were eliminated, sawtimber use would still exceed annual sawtimber growth.

On one-fourth of the commercial forest lands of this country, mostly

(*Turn to page* 41)

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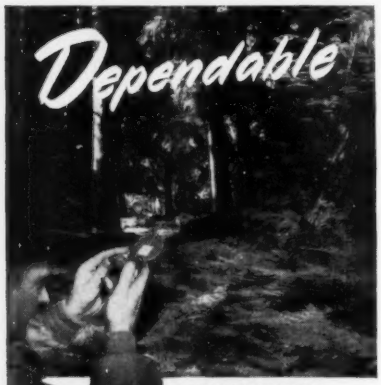

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Timber Harvest Know-How

(*From page* 26)

drawn upon to develop this fairly simple concept:

Select a piece of woods where there is some merchantable timber to be harvested. Mark the trees which are to be cut. Arrange a real (not artificial) sale between the owner and one or more industries (e.g., pulpwood to a pulpwood dealer, veneer trees to a veneer buyer, stave trees to a stave buyer, hickory to a handle mill, sawlogs to a lumber mill, etc.), but cut only part of the area prior to the demonstration.

Leave part of the marked trees to show what the forest was like before cutting. Measure areas carefully. Compute volumes and have the purchasers place values on each cut tree or group of logs, bolts, cords, or other units. Arrange for participation in the demonstration by appropriate organized groups, by technical people, by timber growers, and by operators.

The tentative proposal got encouragement and promises of support from Henry Malsberger of the Southern Pulpwood Conservation Association, Paul Schoen, then executive secretary of the Forest Farmers Association, former Tennessee State Forester J. O. Hazard, Lou Williams of the Keep Tennessee Green Association, and E. C. McReynolds, Associate Director of the University of Tennessee Agricultural Extension Service. Discussions with state people in Alabama and North Carolina brought similar response. So the next step was to try it out on the ground.

The first formidable obstacle to overcome was to get representatives of the interested groups together in the several states. There was no reticence, but when you try to get a bunch of busy people together, you always run into difficulties. Next, a place had to be found where the timber situation was right and where owner and operator would cooperate.

Everything was finally set in one instance and then the owner decided just a few days before the demonstration to clear cut the marked area. A landowner in Lawrence County, Alabama, who was also an operator, finally solved this problem, and the first demonstration was held there in April 1951.

Sponsors included the Alabama Division of Forestry, the Agricultural Extension Service, and the Alabama Forest Products Association. Attendance and participation of operators, landowners, and organized groups was good. Product purchasers made it plain why large, quality trees were worth more than small or defective ones. Growers got the point that they could control size and quality through management.

Since then, 11 other demonstrations following a similar pattern have been held in Alabama, North Carolina, and Tennessee. Attendance has ranged from 30 to one crowd of 400 which "swamped" the arrangers and played havoc with the soft drink supply furnished by a sponsoring paper company. Total attendance at the 12 demonstrations was 2163. Of this total, about ten percent were operators; about 60 percent were farmers and other woodland owners, including G.I. trainees; the rest were high school students and cooperating agency representatives.

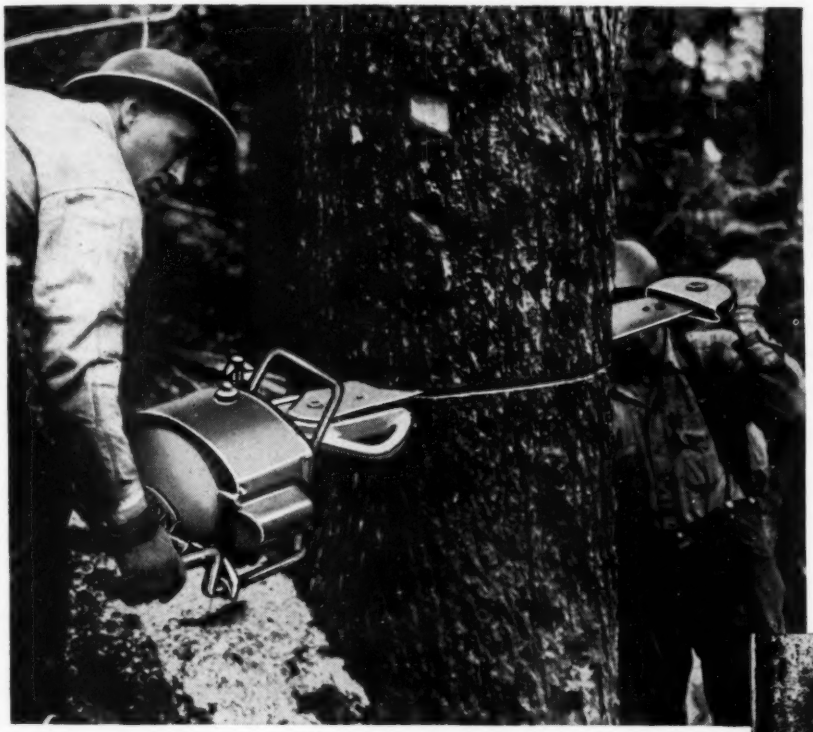
Newspapers, radio stations, and other news channels have provided splendid before and after coverage. Value of products sold from sample acres has ranged from $27 to $438.

The demonstrations have produced many interesting sidelights. A county judge, who for years fought county participation in state-organized fire control, attended one of them. After it was all over he came up to the county's most vigorous proponent of fire control and said, "Herman, I was wrong. This forestry business is good for this county."

An official of a national dairy products distributor gets to as many demonstrations as possible and points out the bad effects of hardwood grazing on milk production and the further injurious effect of such grazing on summer stream flow.

A lumber and tie operator frankly admitted that veneer and stave logs are the "cream of the crop," that every grower should produce more of them and less of the products of secondary value. A veneer log buyer had no hesitancy in explaining why he was willing to pay $96.50 for one 16 foot white oak log (he wanted many more). A stave producer similarly explained why he paid $33.50 for the second log in that same tree ($130 for the tree).

Drama was extemporaneously injected into one meeting when a farmer spokesman implied that farmers don't practice good timber management because timber buyers get together and beat down the prices. An



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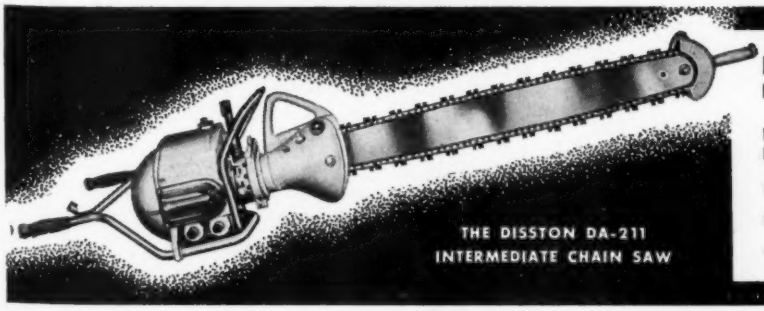

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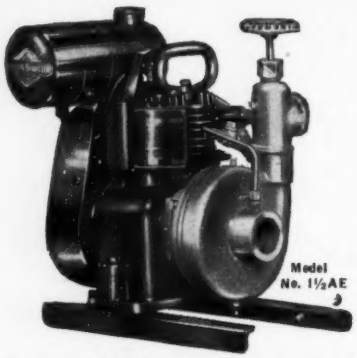

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Timber Harvest

(*From page* 34)

industry spokesman immediately responded: "With all the consultants and free forestry services now available from many public agencies. and with the heavy demand for products, any grower who gives his timber away these days is a durn fool."

So far 43 agencies have sponsored and participated in timber harvesting demonstrations. Included are three state divisions of forestry, three state agricultural extension services, the U. S. Soil Conservation Service, U. S. Forest Service, Southern Pulpwood Conservation Association, Forest Farmers Association, Aromatic Red Cedar Association, Alabama Forest Products Association, Keep Tennessee Green Association, Southern Hardwood Producers, Illinois Central Railroad, three pulp and paper companies, two woods equipment manufacturers, 11 lumber and specialty dealers or manufacturers, and 12 landowners.

Some 45 additional demonstrations are planned in the Valley this fiscal year. They improve with experience.

Requirements for success are rigid but workable. The piece of woods selected should contain some merchantable mature timber, the wider the range of products the better. Landowners present should be understanding, intelligent and patient and timber buyers should be cooperative. Influential local industry should lend its support. Careful planning of details, plus showmanship, is essential.

And by all means, there must be someone who can check last minute arrangements and tie any loose ends into a neat knot.

Your Shade Trees

(*From page* 15)

and diseases on your shade, fruit, or ornamental trees.

To begin with, one must remember that there are four general types of shade tree enemies: 1) Leaf-eating insects, such as cankerworms and Japanese beetles; 2) sucking insects, such as red spider mites and scale insects; 3) wood borers and bark beetles, such as sugar maple borer and elm bark beetles; and 4) tree diseases, such as leaf spots, fire-blight and Dutch elm disease.

Each of the above four groups requires a *different* spray material to keep it under control. For instance,

(*Turn to page* 38)

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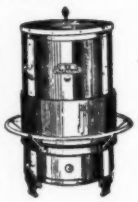

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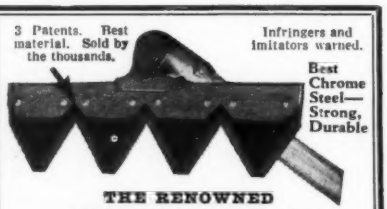

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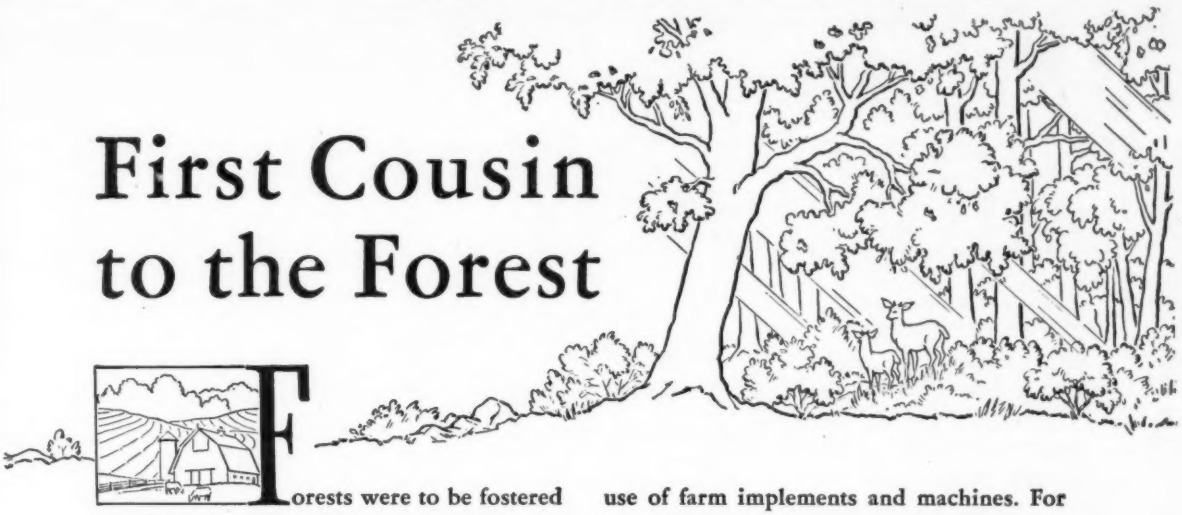

Forests were to be fostered for their own sake, as sources of timber, in the dawning idea of conservation. Soon came consciousness of the forest role in control and conservation of water. Later was learned the power of trees in the toughest tasks of soil erosion and silt control.

Now we see that conservation comes not in closed compartments, but as a unified program of land utilization. Valley and hill, forest and field, wild life and farm livestock —all are parts of the intricate, interlocking pattern.

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Your Shade Trees

(*From page 36*)

arsenate of lead, the most common insecticide in use today, is a stomach poison. When applied to the foliage of a plant it will kill any insect that eats the foliage. To use arsenate of lead on evergreens to kill red spider mites is useless. You may actually do harm to the plant.

Nicotine sulfate, another common insecticide, is a contact poison and must be applied to the plant when the sucking insect is on the tree. You must touch it with the spray solution. It then corrodes, or burns, the delicate tissues of the insect and causes its death. To apply nicotine sulfate to the tree for control of Japanese beetles is a waste of effort. It won't bother them at all, but DDT will.

In the case of wood-borers or bark beetles there is little that can be done to control them because they tunnel in the wood or underneath the bark. Where their tunnels are large enough to inject a gas or fumigant, such as cyanogas or carbon disulphide, into their tunnels they can be controlled.

Tree diseases are caused by bacteria, fungi, or virus agents. The best way to control such plant diseases is to prevent their spread from tree to tree. One of the materials for this purpose is a fungicide known as Bordeaux Mixture (lime and copper compounds). When this is applied to the foliage it prevents the spores from developing and spreading to foliage not infected. Another material for this purpose is finely ground sulfur dust. Anything like nicotine sulfate or arscnate of lead is absolutely useless for this purpose.

Once a disease has gained a foothold on a plant it cannot be "burned-out" with a material that would not destroy the plant. Therefore, the foliage must be kept covered with a fungicide to control a disease *before* it gains much of a foothold. It is a case where an ounce of prevention is worth a pound of cure.

The practice of putting lime or tobacco stems in the ground to control insects is a waste of time. The tobacco stems or the lime will no doubt have a value as a soil amendment, but that is a different story from pest control.

Soap suds used for dousing evergreens affected with aphids (plant lice) may give good control, but greasy dish water will probably do more harm than good to the plant.

DDT, which by its chemical name is known as "dichlorodiphenyltrichloroethane," is a material suffering from over-publicity. For the purpose for which it was used in World War II it was satisfactory. It prevented epidemics which might easily have killed more men than the bullets of the enemy. However, its use for control of orchard, forest, farm and garden pests is quite another matter.

Right now scientists are not certain when or where we should use it. It is so destructive. It kills beneficial insects as well as the pest variety. Furthermore, there are certain insects on which it has no affect at all. Where it has been used as a general spray in horticulture it has upset the balance in nature so that beneficial insects were killed while the destructive variety multiplied unhampered.

The red spider mite is an excellent example. This pest is normally controlled with a miscible oil and a nicotine sulfate spray. Where DDT was used, it multiplied in geometric proportions since the insects which prey on the mite had been eliminated by the application of DDT. On the other hand, such destructive tree pests as the Japanese beetle, cankerworm and Gypsy moth are easily controlled with DDT.

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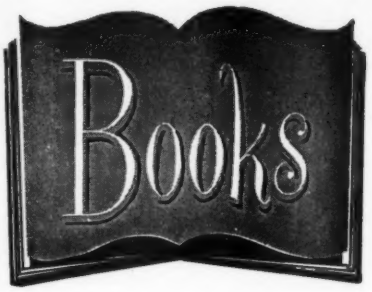

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Scenic Guide to Oregon, by Weldon F. Heald. Published by H. C. Johnson Scenic Guides, Susanville, California. 100 pages, illustrated. Price $1.50.

All major scenic areas and points of interest are discussed in this convenient and profusely illustrated volume—the second of a series of guides which the author is doing on the Western states. Vivid descriptions and claims to fabulous scenes should serve to whet the curiosity of those who have an appreciation of new and different locales.

Upon Its Own Resources, by Lawrence L. Durisch and Hershal L. Macon. Published by the presses of the Universities of Alabama, Georgia, Mississippi, South Carolina and Tennessee; distributed by the University of Alabama Press, University, Alabama. 136 pages. Price $3.

A description, evaluation and comparison of the conservation programs in eight Southeastern states — Alabama, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Virginia — is presented here. Resulting from a cooperative investigation of resource administration by six state universities and the Tennessee Valley Authority begun in 1945, the authors have brought together individual state reports, appraising the conservation problem from a regional point of view. Durisch and Macon, both of the TVA, offer their recommendations for improving the administration of the natural wealth of the region.

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He Makes People Sit on Cactus

(*From page* 17)

to the site and arranged into walls of beauty. The frame for the rock work now is faced with saguaro cactus ribs. A huge fireplace is fashioned out of rock, while its interior is lined with slag procured from an old Spanish smelter near Ajo.

In keeping with the Western motif, all the doors are of heavy garrison type. An old wagon wheel makes an attractive chandelier. Breakfast set, davenport, desks and chairs are made of saguaro and cholla cacti. At the rear of his home, Wood has fashioned a set of garden furniture made of saguaro ribs.

Wood decided that if a home could take on a different outlook by the mere application of cacti ribs, why couldn't other people become interested in the same idea. It was a bold plan but he decided to try it. Loading the family into his truck he ventured deep into the interior for the scarce type of cactus used in furniture making.

For three days, the family camped and searched for the precious wood. To the Woods, lovers of the desert, it was a pleasant vacation. Wood cut into the base of the tall saguaro with his saw and ax and stripped the green bark. A good load was driven home, and applying painstaking handcraftsmanship Wood began to turn out unique lamps and picture frames.

At the end of his gravel street, he nailed up a sign, "Herb Wood—Cactus Lodge." Soon, a steady stream of curious visitors began coming to his desert home to admire and often purchase his work.

Orders poured in for dining room tables, benches, china cabinets, tea and coffee tables, buffets, baby cradles and large chairs. Since all was hardwork, a month was usually required to complete a large chair.

Few tools are used in this art. Glue is used in place of nails. To make a chair, Wood will use a pine wood base where necessary and onto this he glues the strips of cactus ribs. For the bases of lamps, ends of desks and arm rests on chairs, the craftsman searches out grotesque cactus roots in the desert. These roots are hard to find, but unusual designs bring fancy prices.

Wood usually uses a piece of saguaro, the stately high cactus, to build large pieces of furniture. The smaller cholla cactus is utilized in the construction of tiny pieces carved out by hand and used for lamp shades.

The cactus ribs are untouched by paint or varnish and except for some sanding, keep their natural appearance.

Soon after his entry into the cactus furniture field, Wood had visitors from London, Paris, Mexico City and almost every state in the Union. His finest advertising is his outstanding craftsmanship. Just recently, Wood completed a full dining room suite—tables, benches, buffet, serving table and mirror frame — for a swanky home in the Catalina foothills. Last year, he was asked to design and build a complete two-room suite for a home in Vermont.

Small lamps and other curios made of cactus ribs sell at a fast pace to tourists on their way to the San Xavier Mission.

Since the process of building a large piece of furniture is long and tedious, Wood builds such items only on contract and to specifications.

Here is truly a man who makes people sit on cactus—and like it.

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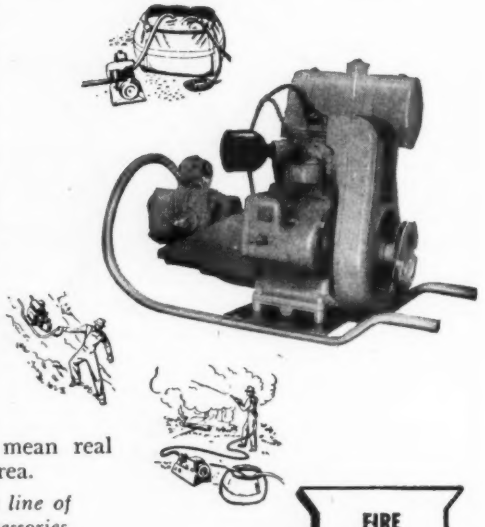

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FIRE EQUIPMENT DIVISION

Insect, Disease Problems Stressed

(*From page* 32)

public forest lands and large industrial holdings, management is good; and on another one-fourth, management is fair. "But more than half of the commercial forest land is still being handled poorly or destructively," Mr. Watts declared.

To aid private landowners in good forest management and marketing, the Forest Service cooperates with the states in supplying on-the-ground technical assistance. In 1951 some 240 project foresters working under the supervision of the state foresters gave assistance to 4716 woodland owners in 38 cooperating states. The technical assistance program as yet covers only about one-half of the areas needing such service. Even on the areas served, project foresters have not been able to meet all requests for assistance.

The report also recommends increased cooperative aid from state and federal forest services for tree planting on private lands. State nurseries this year distributed 400 million trees to private landowners, an all-time high, but were still unable to meet the demands.

Another part of the program for timber abundance calls for action to stop further forest destruction and deterioration through public control of cutting by the individual states. Sixteen states already have laws regulating forest practices.

Mr. Watts reports that hundreds of new mining claims were filed on national forest land last year, adding to the management problem created by some two million acres presently covered by mining claims. (This problem is featured in "Abuses Under the Mining Laws," appearing in the January, February and March issues of *American Forests.*)

The chief forester pointed out that recreation use of national forests hit the record high in 1950 of 29 million visits.

Forest Service experiment stations and the Forest Products Laboratory at Madison, Wisconsin continue, in cooperation with non-federal agencies, to contribute substantially to improved forest, range and watershed management and forest utilization.

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Mining Law Abuse

(*From page 22*)

ing" was the reason for locating the claims in the first place.

In Oregon the Bureau of Land Management is interested in the activities on a lode claim known as the Lu Lu Quartz Claim. It's a "lu lu" all right, for upon the property are located an auto court, a blacksmith shop and recreational facilities. There is a mine tunnel on the property, but BLM inspectors say the vein has long since been exhausted.

I have chosen the five foregoing examples of exploitation of public domain to give a cross section of the things that are happening to your land by misuse of the mining laws. You will note that the land on these claims was being used for five different purposes, viz., grazing, timber, fishing, hunting and private commercial enterprises. A sixth use, that of a home, is apparent in all cases.

Also bear in mind, these are just typical cases; they are not outstanding in any way. There are thousands more like them throughout the west, and untold thousands more that have not yet been discovered by either the BLM inspectors or the forest rangers. (Remember, the mining laws state that it is not necessary to register a claim with the federal government—only at the county seat?)

Lest you think I am coloring this article to make the situation appear worse than it actually is—in other words, to give the impression that the evil of falsified mining claims is more widespread than the facts will support, here is a statistical truth, a matter of record, that will open your eyes:

There are 900,000 acres of Forest Service land that have gone to patent under the mining laws. That means 900,000 acres of public domain that you don't own any more. This acreage was acquired by private interests for the avowed purpose of developing the minerals alleged to be therein.

But—and get this—only 14.7 percent of these 900,000 acres ever produced mineral in commercial quantities! And, on only three percent of this entire area were commercially successful mines ever developed!

I wish to state emphatically that neither the Bureau of Land Management nor the Forest Service is in opposition to legitimate mining operations within public domain. On the contrary, both federal agencies give every support and cooperation to the

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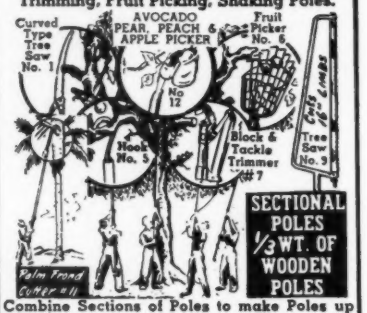
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discovery and development of minerals. Both realize that the need for mineral resources is as critical today as it ever was in the history of our country. Their anguished wrath is directed at the phony "miner," the unprincipled and selfish person who uses the mining laws to gain possession of public domain for purposes as far removed from mining as it is possible to get.

This article would not be complete without a description of what I consider one of the most damnable outrages yet perpetrated in the guise of legitimate mining.

Pumice, gravel and limestone are regarded as minerals and as such come under the mining laws. By the very nature of their formations, mining for such materials can be an extremely destructive process. It frequently resembles "strip mining" for coal, which is carried on to some extent in Ohio and Pennsylvania.

Whole areas of land are ripped to pieces in order to obtain the mineral which lies close to the surface. This type of mining is being carried on in the Santa Fe National Forest in New Mexico where pumice miners are destroying huge areas of topsoil and standing timber. This situation was aired in the February issue of *American Forests.*

Ghastly as is the practice of the pumice miners in the Santa Fe, so-called "miners" operating the Coconino National Forest in Arizona are going them considerably better. Within the confines of that magnificent area of public domain, huge sections of the very topsoil were stripped off and carted away in trucks to be sold to enrich the garden plots of city dwellers, until court action put a stop to it.

And this is mining?

The solution, let me repeat, is a common-sense remodeling of existing laws. Again repeating, the legislators should bend their efforts in one of two directions—and without delay.

Preferable, perhaps, would be a law placing all mineral disposal on the public domain under the provisions of a leasing act similar in principle to the Mineral Leasing Act of February 25, 1920. Such a step would be wholly adequate and reasonable to encourage legitimate mineral development, prevent a lock-up of any mineral potentials, yet provide for wise management of the lands you and I, and every other tax paying citizen, rightly own in joint deed.

Another solution would be legislative action to separate jurisdiction

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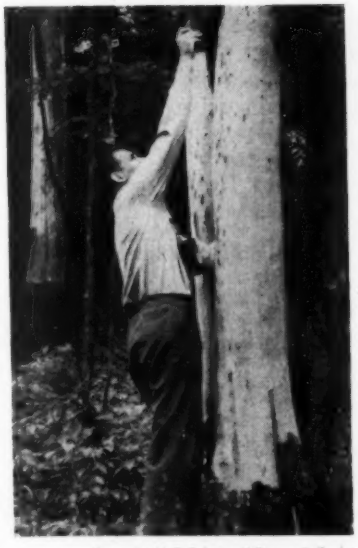

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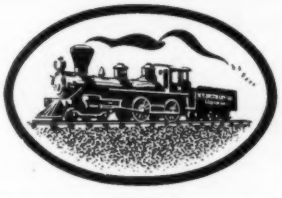

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over mineral and surface values. The federal government would retain all rights to the surface or products thereof on public lands, except as necessary for mineral development, and it would further reserve the right to use that part of the surface (trees, soil and water) not needed by the claimant in rightful pursuit of working his mine. Such a revision would accomplish much by eliminating loopholes for many fraudulent claims and would put an end forever to interference with good land use management.

Whatever the course of action, let's save our treasured heritage of public domain while there's still something worth saving—now!

Field to Forest

(*From page* 23)

fewer and fewer, until the last one falls and their pioneering will be done.

In this work the grey birches have a strong ally and competitor in the black cherry. Strange to see this here as a twisting and defective scrub, ugly to all but the most loving eye, because elsewhere it is a valuable timber tree. On the High Plateau of north-central Pennsylvania, for example, it forms an extensive and permanent type and is the basis of an important paper and wood distillation industry.

Another species that is more pioneer than permanent is the red maple, a tree of greyish-brown bark and loftier crown, valuable for firewood, for game-browse, and for glorious autumn foliage. For years now the light-winged samaras of the red maple have been blowing over this area by the thousands, settling and growing wherever the sun and wind allow.

On one corner of the lot they are apparently permanent. Here the ground lies so low that the sod is formed into bogs. On nearly each one stands one or more red maples, small, spindly and almost changeless as regards growth. Poor drainage has kept all other trees except a few elms out.

Elsewhere the true and inevitable heirs to the land are the oaks. This fact would be known even without first-hand observation because this region of the lower Hudson Valley is a domain of the *Quercus*. Through ages and ages of forest history, the oaks have become best adapted to this particular set of environmental conditions.

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Follow These Rules:

1. Hold your match 'til it's cold—then pinch it to make sure.
2. Crush out your cigarette, cigar, pipe ashes. Use an ash tray!
3. Drown your campfire, then stir and drown again.
4. Ask about the law before burning grass, brush, fence rows, or trash.

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Red and chestnut oaks grow on the hillside and ridgetops; but here on the low land are pin and swamp white oaks. They come from those few old veterans left for shade along the swamp's edge. Every year new ones can be discovered; so that already they would make a well-stocked and complete forest cover even if every other tree were cut.

However, to do so would be to follow a mistaken idea of woodland improvement. If anything is done to encourage the oaks, which are at the same time the handsomest and fastest growing members of this forest community, it should only be done tree by tree. Keep sunlight on the top of the crowns and they will outgrow every competitor.

Small woodlots, wherever they grow, can be managed and improved by following this simple rule. Their trees are in a constant state of tension and struggle. But certain of these are bound to win. Watch for these victors (no forest can hide them long), and work for the winning side. The chances are that these trees are also the soundest, the most beautiful, and the most valuable. Whatever the purpose of the woodlot, these are the ones that will serve the owner best.

A Straight Path

(*From page* 11)

has the opportunity of learning the fundamentals.

There are also pre-vocational classes in auto mechanics and woodworking. Instructors and boys alike are informal in these classes; there is some joking and an instructor may sometimes feel that the best subject of the boys is "mischief," but real progress is made nevertheless.

In the words of one of the camp's new arrivals, "There's plenty to do—work and play—both."

Play takes a variety of forms, but in the summer if boyish voices burst out with: "Pitch it in there, kid; Take it easy Tennessee; Slide, Kelly, slide"; the form of play is the favorite of all—baseball.

"Swing as hard as you can," calls out the coach, "Uncle Billy," who was once a professional player. Two men are out, and a boy who held a bat in his hands for the first time only a few months ago, got a clean hit. It is thought that that boy may be good enough to play professional baseball when he leaves the camp.

"I'm so glad Harvey got that hit. It will do him so much good," said

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This Tree Trimmer has the Compound Lever side cutting head and also double leverage due to the pulley which is attached to the curved lever. It will sever any branch up to 1¼" in diameter with the slightest effort. Only a side cutting head leaves clean wounds.
For larger limbs we recommend our No. 44 Pole Pruning Saw with 16" blade.
For your convenience we will furnish both the No. 1WE Pruner head section and the No. 44WE Pole Saw head section 30" long and extra handle section 6 ft. long fitted with quick changing sleeve connectors, known as our WE Combination Pruner and Saw.

Two complete tools . . longest section 72 in. . . . EASILY CARRIED IN SMALL CAR.

. . . longest section

	Length	Weight lbs.
30 in. Pruner	..	2¾
30 in. Saw	.....	1½
72 in. Section	..	2
72 in. Section	..	1¾
Total Weight	..	8

This combination can be quickly and easily assembled to make either of these two tools:

1 Heavy Duty Tree Trimmer (1¼" capacity).... 14½ ft
1 Fast-cutting Pole Saw..... 14½ ft.

Damage by ice and wind often can be avoided, or the effect lessened, by use of correctly designed pruning tools, bracing materials, and tree wound dressing.

No. 127 PARAGON SAW. This curved blade, draw cut pruning saw is ideal for all-around pruning. Best quality saw steel. Easy grip handle.

This drop-forged tool steel 9-inch Hand Pruner has a crucible steel blade and hardened hook. Unsurpassed. Ask for catalog showing a complete line of tools.

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the Chief Counselor, as he watched the game.

Many parts go to make up the whole picture of this outdoor camp which is having such a telling effect on the boys who must go there. One may well be a counselor who is an ex-Marine, a forester and a musician. He likes the boys and the boys like him. Another part may be the good food and the barracks that are neat, orderly and clean.

And surely there's the boys' sense of physical development that comes to their bodies when they engage in the forestry projects. Still another influence is assuredly a camp superintendent who leads the boys in such a project as clearing out an abandoned Boy Scout swimming pool, not caring about getting soaked to the skin. He's concerned that his boys may enjoy their swim in the pent-up mountain stream.

The disciplinary program of the camp, in general, is built upon incentives. Rather than being punished for poor conduct, a boy is rewarded for good behavior. Rewards come in many forms. One may be a trip to Monticello, home of Thomas Jefferson, another a trip to the West Virginia Paper and Pulp Company. Here the boys see all of the processes in paper-making, from the barking of the logs to the finished item, which may be paper cups.

Although the constant goal of the camp internees is parole, the link between them and the camp authorities, who have given them friendship and companionship is very strong. They show this by letters they write after being released, telling what they are doing, how they are getting along, and perhaps asking advice; and they also return with their families to show where they "made good."

The Bureau of Prisons presents data to show that since the camp opened, 517 boys have been released on parole. Up to this time only about 200, or 40 percent, have been arrested again. This is a significant figure, since it is recognized that recidivism, or the return to custody for a second offense, is one of the biggest headaches to juvenile authorities. Actually, in many places, recidivism runs as high as 60 or 70 percent.

Natural Bridge Camp, in its eighth year, still is considered an experiment. In this length of time, however, the federal government's youngest institution for delinquent boys has pointed up the great opportunity that exists in linking the conservation of human resources with the conservation of natural resources.

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The tremendous task of fact-gathering was carried out by a committee of government, state and private experts. It represents the work of scores of individuals, federal and state agencies and private organizations, all of whom contributed their time and services to bring under one cover, a documented record of forestry progress in one of the most critical periods in the forestry conservation movement in the United States.

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Tarzan's Jungle

(*From page* 25)

that the 8000-acre Santa Anita rancho was then the most picturesque spot of Southern California, with mountains, valleys, springs, and running silvery streams. "You would observe in riding over the rancho its having more than its pro rata of towering and overspreading live-oak trees, manzanita, laurel, and other forest in comparison with other ranchos," he wrote.

In 1847, "Perfecto" Reid sold his great estate to Henry Dalton, an Englishman, who, three years later, disposed of it to Joseph Rowe, a traveling circus owner, who wintered some of his animals there. In 1858, it again changed owners, becoming the property of Albert Dibble and William Corbitt, banker and rancher respectively.

Retaining it for only three years, they in turn sold a large part of it to William Wolfskill. After breaking trail across the Rocky Mountains as a trapper, hunter and Indian fighter, Wolfskill became the father of the orange industry in California. He also planted the first eucalyptus trees to be grown in Southern California.

A pioneer merchant, Harris Newmark, acquired the rancho in 1872 for $85,000, and three years later sold it to "Lucky" Baldwin, a mining magnate, for the princely sum of $200,000. The increase in price in such a short span was partly due to the talk of a railroad coming, which was to bring yet more people from the East. Businessmen began to visualize in the rich lands greater possibilities as a producer of grapes and citrus fruits.

All of this, however, could not have accounted for the then-staggering sum that Rancho Santa Anita brought. The fact is that "Lucky" Baldwin had set his heart on obtaining the land with its giant oaks, bubbling springs and rolling contours.

Baldwin certainly was entitled to be called "Lucky." He once journeyed to India with some friends, and before going locked what mine shares he had in a safe, instructing his broker to sell them should they go up to a certain price. Returning, he learned that they had risen to $12,000 a share instead of the $800 that he had set for his broker. Not one to cry over spilt milk, he was inclined to laugh the matter off until his broker informed him that the shares were still in his safe—because Baldwin had carried the keys with him. He opened

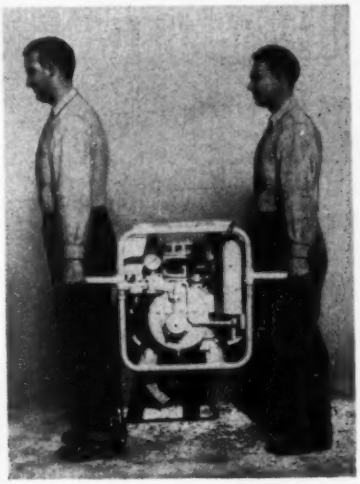
HALE FZZ Centrifugal

The Forester's Workhorse

The Portable Hale FZZ Centrifugal Pumping Unit shown at right will pump, from draft up to 60 GPM at 90 lbs. Its companion Centrifugal, Type HPZZ, will pump 15 GPM up to 200 lbs.

These Compact, rugged, quick-starting units are "workhorses" for fighting forest, brush and field fires. One state forestry department has over fifty of them in service. Their 4 cycle

Below: An FZZ (or HPZZ) is invaluable in fighting this type of fire which burned over 3000 acres in Unity, New Hampshire. Photo courtesy of U. S. Forest Service.



Two men can easily carry FZZ or HPZZ.

aircooled 8¼ H.P. engine is easy to start in any kind of weather.

Other Hale Units

***CFUS**	**600 U.S. GPM at 120 lbs.**
***WP**	**150 U.S. GPM at 100 lbs.**
HP	**60 U.S. GPM at 600 lbs.**
****NP**	**15 U.S. GPM at 40 lbs.**

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****Self-Priming Portable.**

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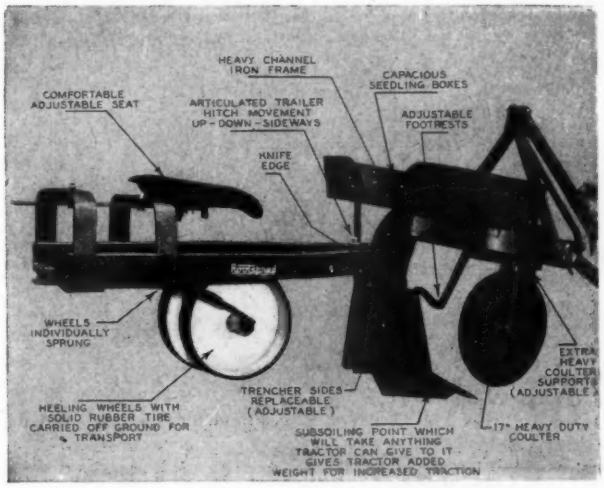
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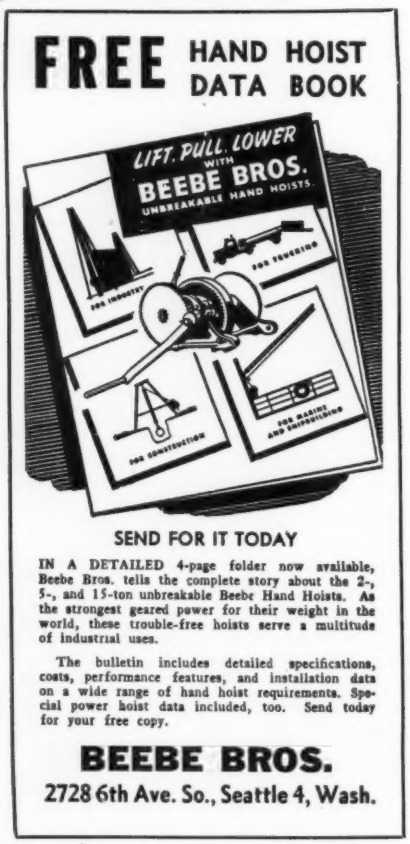
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the safe and sold the shares for around five million dollars. Thus he became "Lucky."

Baldwin stocked the estate with deer, as well as gorgeously plumed peafowl. Descendants of these last are still to be seen roaming over the Rancho — now the Arboretum. His horticultural products included the finest orchards of citrus and other fruits, corn, alfalfa, barley and oats; his stock, Arabian horses, Holstein-Friesian cattle and Poland-China hogs. His expansive water system conveyed spring water from huge reservoirs, through 20 miles of pipeline and a tremendous number of ditches and conduits surrounding the buildings and every part of the homesite.

As visitors to the Arboretum thread their way through California pepper trees, originally from Peru, acacias, native to Australia, eucalypti, from the same continent, and varieties from other foreign countries, they will come across seven specimens of ginkgo, traditionally native to China. The largest measures 19 inches in diameter and is 90 feet tall. "Lucky" Baldwin planted these trees around the coach barn. Presumably the trees were planted from seed obtained in China between 1875 and 1880. Two of the trees are female, but the finest and largest is a male tree of the pendula form.

Although for colorful atmosphere this heritage makes one's visit to the Arboretum more alluring, Rancho Santa Anita's future lies not in the fact that the Indians once made it their home, or, for that matter, that Tarzan and other pictures are filmed here. It rests on the fact that this is a laboratory for trees which will enhance the beauty of Southern California.

Washington Lookout

(*From page 4*)

Representatives James F. Lind, of Pennsylvania, and Harold C. Ostertag, of New York.

The little character was originated by the Forest Service in cooperation with the Association of State Foresters and The Advertising Council, and use of the trade name or figure would be restricted except as authorized by the Secretary of Agriculture. Following public hearings, the bill has been reported favorably by the Senate Committee on Judiciary. Hearings were also held by the House Subcommittee on Bankruptcy of the Judiciary Committee, but no report has yet been made.

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William P. Wharton—Massachusetts, President, National Parks Association.

Chester S. Wilson—Minnesota, Commissioner, Department of Conservation.

The Lookout's Mechanical Eye

(*From page* 19)

(the latest models read twice that far), and the smoke was beyond that. The fire was out of his district.

The lookout picked up the telephone and rang the ranger station at Summit Meadows, asked to be connected with the Clackamas Lakes headquarters—he had a fire to report.

The call went through; the Lakes' dispatcher answered. No smoke reported by their lookouts yet, he said. Must be on the Warm Springs Reservation, from the reading. He'd call Mt. Wilson. A "cross check" was made and within a matter of minutes the call came back to Lookout Mountain.

"There's a fire there, all right. Know what it is? The Warm Springs Indians — their annual huckleberry feast is getting started. Building up the big potlatch fire. And by the way, your reading was right on the nose. Pretty good for a 20-mile shot."

The listening lookout high on the peak east of Mt. Hood's gleaming snows chuckled to himself. But the procedure would have been the same had the smoke been a danger signal instead of a "legitimate" one. The importance lay in the fact that it had been sighted quickly and accurately, and acted upon without delay. And that quick, accurate action had been made possible chiefly through use of the Osborne fire finder.

Today some 4,000 finders are in constant fire-season use in nearly all forested parts of America, including Canada and Mexico, and in many foreign timber areas.

Also, supplementing the finder and in use in many forest districts, is a specially-devised camera for the taking of graduated panoramic shots in difficult terrain—another Osborne invention.

Retired from the USFS, William Bushnell Osborne now does fire prevention work for private timber concerns throughout the Pacific Northwest. Not infrequently this work takes him to some high-perched lookout tower beneath which the forests fall away like a green carpet; and kept so because of the invention, 41 years ago, of the young Yale forester.

Woods Management

(*From page* 28)

indicate the average spacing between the trees remaining after the thinning. Thus, in a stand in which the trees average six inches in breast-high diameter, the trees would be thinned to an average spacing of eight feet between all remaining trees.

Because a series of thinnings aims at developing a full but not overcrowded stand of well-growing, high-quality crop trees, the poorest trees should always be removed first, and the best left for the future. As much as possible, the healthiest, most vigorous and well-formed individuals should be left.

It won't take much experience for you to decide which trees are the best in the stand and should therefore be left, at the proper spacing, and which are the poorest, and should therefore come out in the periodic thinnings. A glance at the stem may quickly tell you whether the tree is a good one to leave, or whether it had best be removed. But most of the time it will require considerable study of the crowns for the final decision of which trees to leave and which to take.

So remember, when you thin your timber, keep looking up. The answer is mainly in the tops.

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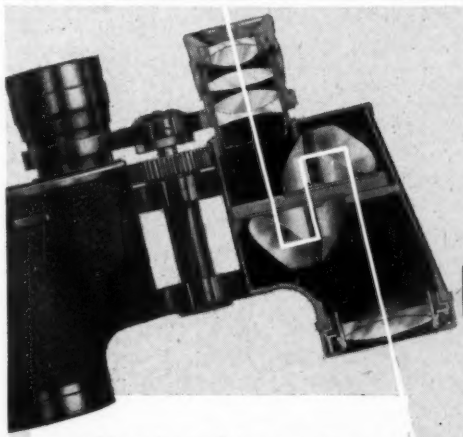

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Editorial

MR. ICKES' MARK ON CONSERVATION

By OVID BUTLER

Harold L. Ickes, who died February 3, enlivened the federal scene of resource conservation during his 13 years as Secretary of the Department of the Interior as no public figure had done since the political era of Theodore Roosevelt.

Like T. R., Mr. Ickes was a fighter and vigorous of speech, but the two men were widely different in point of techniques of combat. Roosevelt moved across the conservation stage as a skilled boxer dealing factual punches with timely effect, while Ickes rushed in with both arms swinging and vocal cords unlaxed, often ignoring facts, to deal his adversaries knockout blows.

By this technique, he attained great publicity during the 1930s as a conservation champion, fanned into flame old and new feuds in and out of the government, increased the vocabulary of name-callers, made numerous enemies and in the end achieved some notable conservation results.

Considering the colorful and tempestuous career of Harold Ickes as Secretary of the Interior, it is interesting to recall that he came to Washington pretty much a dark horse to conservation groups. When his appointment to the post was announced early in 1933, the uppermost question was "Who is Ickes and what is his stature as a conservationist?"

As a matter of fact, he had some claim in that he had been of the old school of Theodore Roosevelt and Gifford Pinchot and an associate of Walter Fisher and others in establishing "The National Conservation League" in 1908.

A few weeks after he took office, Mr. Ickes was guest of honor at a national parks dinner given by the American Civic Association. Several hundred diners from park, forest and related fields gathered to appraise what manner of man the new Secretary might be and what conservation views he entertained. There were two things in the Department of Interior, and not much else, that interested him, he said — the national parks and the Indians. "I do want to keep them," he added. "I do not believe they are going to take the national parks away. I have not 'gone fishing' for any other bureau in any other department and I am not 'going fishing.' I want to be left alone."

But Mr. Ickes was not left alone, and he did not for long leave other people alone. There was at that time little real conservation to be found on the vast public domain under Interior's jurisdiction, except in the national parks and on the Indian reservations. Several hundred millions of acres of forest, range and watershed lands throughout the west were being, and had been for years, shockingly neglected and their resources dissipated by lack of conservation management. Included were revested O and C railroad lands in Oregon bearing one of the most valuable virgin forests remaining in federal ownership.

Within the year, he had launched a campaign to have the name of the Department of the Interior changed to the Department of Conservation, to which all conservation agencies of the federal government would be transferred.

The proposal brought him into head-on conflict with the Department of Agriculture and with the views of virtually all non-governmental organizations in the fields of farm, forest and wildlife conservation. But this bothered Mr. Ickes not at all. His storming offensive continued through the first five years of his secretaryship and reached its climax in 1937 and 1938 when the Administration's reorganization bill was before Congress. The bill failed of passage and Secretary Ickes lost his phantom Department of Conservation, but in the process, he shook conservation lethargy and complacency throughout the federal establishment as it never before had been shaken.

Picturesque and stimulating though the engagement may have been, Mr. Ickes' greatest contribution to federal land stewardship, we think, is to be found in his own department. That he recognized its weakness and vulnerability is evidenced by the fact that during his almost continuous drum-fire of political conflicts, he was assiduously rebuilding Interior's administrative framework and branding conservation over its portals.

When in 1946 he stepped out in one of his typical outbursts over the President's nomination of an oilman for Under Secretary of the Navy, he could point to a stronger and larger National Park Service and to a public domain at last administered by a conservation-charged Bureau of Land Management, a Grazing Service, a special O and C Forestry Unit and a Fish and Wildlife Service, the last wrested from the Department of Agriculture.

This was an accomplishment which no previous Secretary in Interior's 100-year history had dared or been able to do. It may well be that the name of Harold Ickes will be longest remembered as a conservationist's for this achievement.

SELECTED BOOKS ON FORESTRY AND RELATED FIELDS OF CONSERVATION

THE BOOKSHELF

TREES

A First Book of Tree Identification—Rogers	$ 2.50
A Natural History of Trees of Eastern & Central North America—Peattie	5.00
Forest Trees of the Pacific Coast—Eliot	5.00
Handbook of the Trees of the Northern States and Canada—Hough	5.50
Maintenance of Shade and Ornamental Trees—Pirone	6.50
The Arboretums and Botanical Gardens of North America—Wyman	1.50
The Home Book of Trees and Shrubs—Levison	10.00
The Trees of Pennsylvania—Grimm	5.00
Trees of the Western Pacific—Kraemer	5.50
Trees for American Gardens—Wyman	7.50
Tree Trails and Hobbies—Cater	3.50
Trees-Yearbook of Agriculture—1949—U.S.D.A.	2.25
What's That Tree—Appleton	.25

GENERAL FORESTRY

An Introduction to American Forestry—Allen	$ 4.00
Bernard Eduard Fernow—A Story of North American Forestry—Rodgers, III	7.50
Forests and Men—Greeley	3.00
Indian Forest and Range—Kinney	4.50

FOREST MANAGEMENT

Aerial Photographs in Forestry—Spurr	$ 6.00
Applied Silviculture in the U. S.—Westveld	6.00
Forest Management—Chapman	6.00
The Management of Farm Woodlands—Guise	4.00

MENSURATION AND VALUATION

Forest Mensuration—Bruce & Schumacher	$ 5.00
Forest Valuation—Chapman & Meyer	6.00

WOOD—ITS MANUFACTURE AND USE

A Concise Encyclopedia of World Timbers—Titmuss	$ 4.75
Air Seasoning and Kiln Drying of Wood—Henderson	5.75
Farm Wood Crops—Preston	3.75
Forest Products—Brown	5.00
Harvesting Timber Crops—Wackerman	5.50
Logging—Brown	5.00
Lumber—Brown	4.25
Textbook of Wood Technology—Brown, Panchin & Forsaith	6.00
The Coming Age of Wood—Glesinger	3.50
The Mechanical Properties of Wood—Wangaard	6.00

PLANTING OF TREES AND FORESTS

Farm Wood Crops—Preston	$ 3.75
Plant Buyers Guide—Steffek	$ 7.50
Principles of Nursery Management—Duruz	3.50
Tree Crops, A Permanent Agriculture—Smith	6.00
Woody-Plant Seed Manual—U. S. Forest Service	3.00

FOREST PESTS AND FOREST FIRES

Fire—Stewart	$ 3.00
Forest Pathology—Boyce	6.00
Insect Enemies of Eastern Forests—Craighead	2.50
Our Enemy The Termite—Snyder	3.50

NATIONAL PARKS

Exploring Our National Parks and Monuments—Butcher (Paper $2.50)	$ 4.00
My Camera in the National Parks—Adams	10.00
My Camera in Yosemite Valley—Adams	10.00
Steve Mather of the National Parks—Shankland	4.00

CAMPING AND RECREATION

Field Book of Nature Activities—Hillcourt	$ 3.95
How to Live in the Woods—Halsted	2.75
Our Eastern Playgrounds—A guide to the National and State Parks and Forests of our Eastern Seaboard—Merrill	$ 3.75
The Book of Nature Hobbies—Pettit	3.50

BIRDS, WILDLIFE, FISHING AND HUNTING

A Field Guide to the Birds—Peterson	$ 3.50
An Introduction to Birds—Kieran	2.50
Audubon's Birds of America—Griscom	2.95
Birds of Prey of Northeastern North America—Hausman	3.75
Fishing Flies and Fly Tying—Blades	7.50
Fresh Water Fishing—Carhart	5.00
Game Management—Leopold	7.50
Mammals of North America—Cahalane	7.50
Northwest Angling—Bradner	5.00
Our Desert Neighbors—Jaeger	5.00
Raising Game Birds In Captivity—Greenberg	5.95
The Birds Are Yours—Lemmon & Eckelberry	2.25
The Elk of North America—Murie	6.50
The Fisherman's Encyclopedia — Gabrielson & Lamonte	12.50
The Land and Wildlife—Graham	4.00
The Saga of the Waterfowl—Bovey	5.00

FLOWERS, GARDENING AND LANDSCAPING

American Wild Flowers—Moldenke	$ 6.95
American Wild Flowers—The Illustrated Encyclopedia of—Hausman	2.49
How to Landscape Your Grounds—Johnson	3.50
Shrubs and Vines for American Gardens—Wyman	7.50
Wild Flower Guide—Wherry	3.00

MISCELLANEOUS

American Resources—Whitaker & Ackerman	$ 6.75
America's New Frontier — The Mountain West—Garnsey	3.50
Big Hugh—the Father of Soil Conservation—Brink	2.75
Big Jim Turner—Stevens	3.00
The Book of the States—Smothers & Cotterill	7.50
The Cascades—Mountains of the Pacific Northwest—Peattie	5.00
Conservation in the U. S.—Gustafson, et al	5.00
Conservation of Natural Resources—Smith	6.00
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Our South—Its Resources and Their Use—Evans & Donahue	3.50
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Water, Land and People—Frank & Netboy	4.00
Western Land and Water Use—Saunderson	3.75

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Knowing Your Trees—Collingwood & Brush	$ 5.00
Teaching Conservation—Beard	1.50
Managing Small Woodlands—Koroleff & Fitzwater	1.00
Trees Every Boy and Girl Should Know	.50
Trees of the District of Columbia—Mattoon	.50
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In addition to these two D4s, Neils uses the following "Caterpillar" units: seven D8s with arches, five D8s with 'Dozers, one D6 with 'Dozer, five D4s on power saws (these D4s are also 'Dozer-equipped), two No. 12 Motor Graders for road building and patrol, three D8800 Engines for light plants and a D17000 Engine to power a crusher. This standardization pays off in high production and simplifies service problems.

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Conservation of lumber is more vital than ever these days to keep our nation strong. So is conservation of equipment. By taking care of your sturdy "Caterpillar" units, you'll get *extra* work and wear from them. And it's a good idea to anticipate future needs by keeping in touch with your nearby "Caterpillar" Dealer.

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